TRANSIT ISSUE: TURBINES FOR PASSENGER SERVICE p. 25

MARCH 7, 1966

RAILWAY AGE

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WEEKLY

BART's growing pains:

Signs of a healthy baby

p. 16

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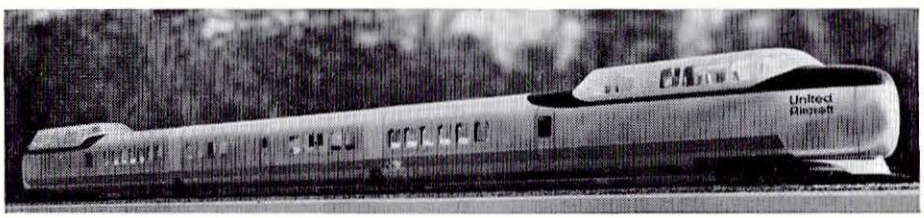
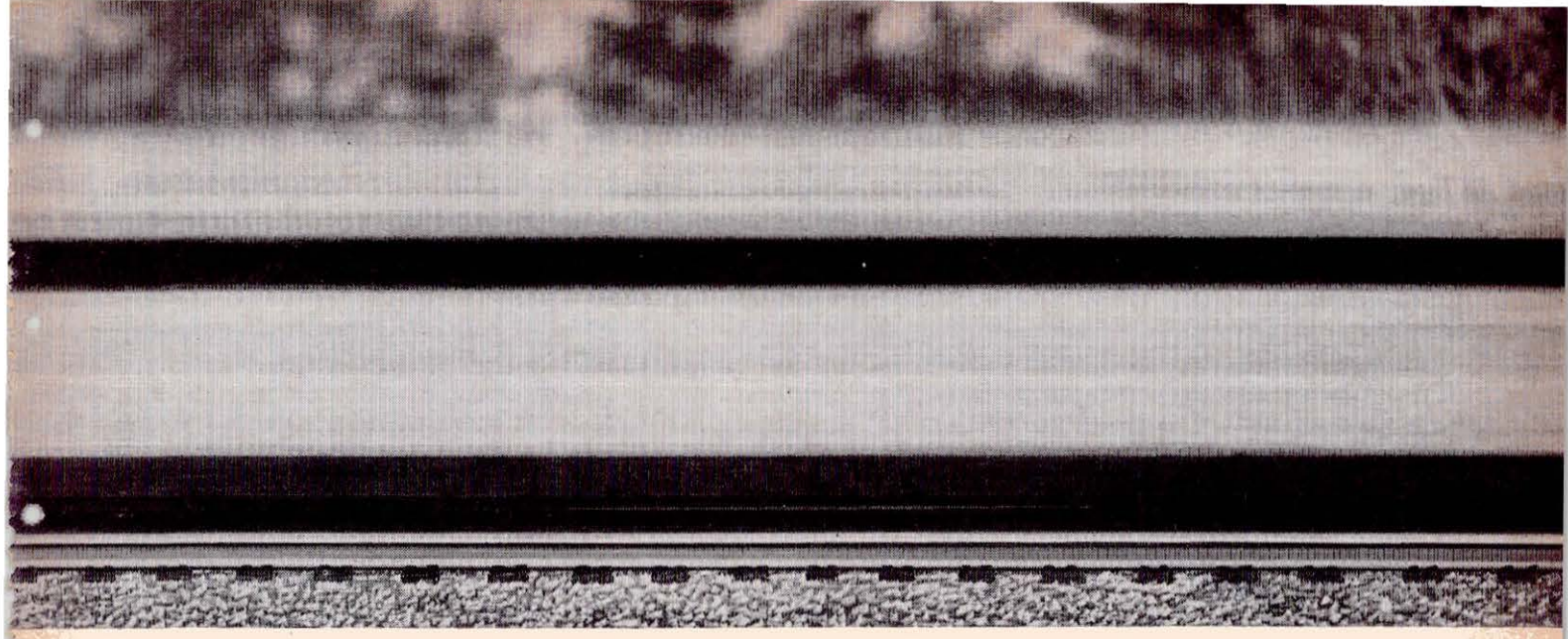
Why they mounted a silver



Silver bullet, standing still.



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bullet on Timken® bearings.

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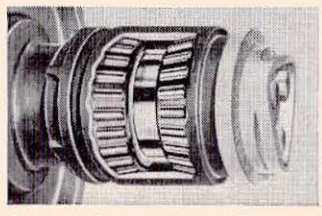

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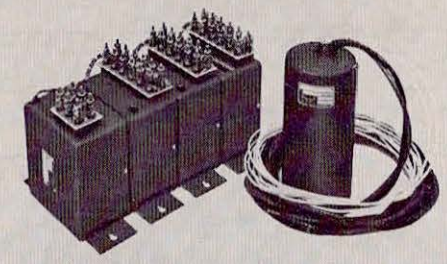

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PHOTO BY FABIAN BACHRACH

METROPOLITAN TRANSIT C·T·A

GEORGE L. DeMENT, CHAIRMAN
Chicago Transit Board

"Chicago Transit Authority is constantly on the lookout for new developments and space-age advancements that are taking place in the transit industry. In the Transit Issues of Railway Age, this information is accurately and interestingly reported.

"The growth of rapid transit is inevitable and we look forward to reading about this progress in future issues."

George DeMent

SHORT AND SIGNIFICANT

'65 earnings estimate is revised—upward

Early, unofficial estimates put Class I railroad earnings for 1965 in the $775 million neighborhood, which would have represented a 15% improvement over 1964. Now, the official estimate is out—and the picture is rosier. The AAR says preliminary reports filed with its Bureau of Railway Economics indicate the carriers had a net of $815 million last year —an increase of 17% over the previous year. Rate of return in 1965 averaged 3.68%, compared with 3.17% for 1964. Total operating revenues in 1965 were $10.2 billion, an increase of $429 million over 1964. Expenses, taxes and rents rose to $9.25 billion, an increase of $281 million or 3.1%. As usual, there was a sobering note: Thirteen of the 76 Class 1 railroads failed to earn their fixed charges in 1965; nine were in the East, two in the Southern Region and two in the Western District.

●

A whopper of a covered-hopper order

Beginning in September, Pullman-Standard will start delivery on a new order of 100-ton, 4,427-cubic-foot-capacity covered hopper cars for Santa Fe. Cars will come off the line at a rate of 42 per day—and P-S won't let up until it's put 2,500 of the jumbo, trough-hatch cars into service on Santa Fe. ATSF calls the order "the largest ever placed for covered hopper freight cars." The new cars will cost more than $38 million; they'll give the road a fleet of 12,700 covered hoppers, including 8,100 100-ton units. Says ATSF President E. S. Marsh: Despite the size of the road's fleet of covered hoppers, "we have been experiencing an increasing demand . . . since last August, with shortages most of the time. It can be emphatically stated that the covered hopper car is the bulk-commodity car of today and the foreseeable future." The $38-million, 2,500-car order, Santa Fe also noted, is in addition to the previously announced capital-spending program for 1966 which totaled $145 million and included acquisition of 5,000 new freight cars of various types.

●

Southern wants to buy two Georgia short lines

Subject to ICC approval, the Southern has contracted to purchase stock control of the two South Georgia short lines—the 68-mile Georgia Northern (which operates through Bridgeboro and Moultrie between Albany and Boston, Ga.) and the 51-mile Georgia, Ashburn, Sylvester & Camilla (whose tracks extend through Bridgeboro and Sylvester from Ashburn to West Camilla). Southern President D. W. Brosnan said 100% acquisition of both companies' stock will cost $2.8 million in terms of Southern stock.

Rail-Transit Seminar Tour to Europe

Railway Age will sponsor a Rail-Transit-Seminar Tour to Europe this summer, leaving New York July 18 and returning Aug. 2. On the itinerary are London, Stockholm, Moscow, Berlin, Milan and Paris. The group will inspect rapid-transit systems in these cities, and will meet with local transit officials for an exchange of views, with emphasis on marketing aspects. The tour is open to all interested transit men, suppliers and local government officials. All-inclusive cost to tour participants will be $997. For details, write to Luther S. Miller, executive editor, Railway Age, 30 Church St., New York, N.Y. 10007.

MONDAY MORNING REPORT

Railroads: they're alike everywhere . . .

"Railroads and freight cars," we say in America. "Railways and goods wagons," they say in Europe and elsewhere. The terms are different, not so the identities. The problems and opportunities facing U.S. railroads are not unique, they're world-wide.

. . . and everywhere they're bouncing back

That was the point made last week in London by AAR President Daniel P. Loomis, speaking at the Third European Conference of the National Defense Transportation Association. "Whether rail systems are publicly owned, as here in Europe, or privately owned, as in the United States, the pattern of problems is surprisingly similar, the route to solutions much the same." After first dominating land transport, he recalled, the industry lost much of its status and traffic, and went into eclipse for some time. Now, he said, the industry "finds itself poised on the threshold of another golden age."

They're moving out smartly, overseas . . .

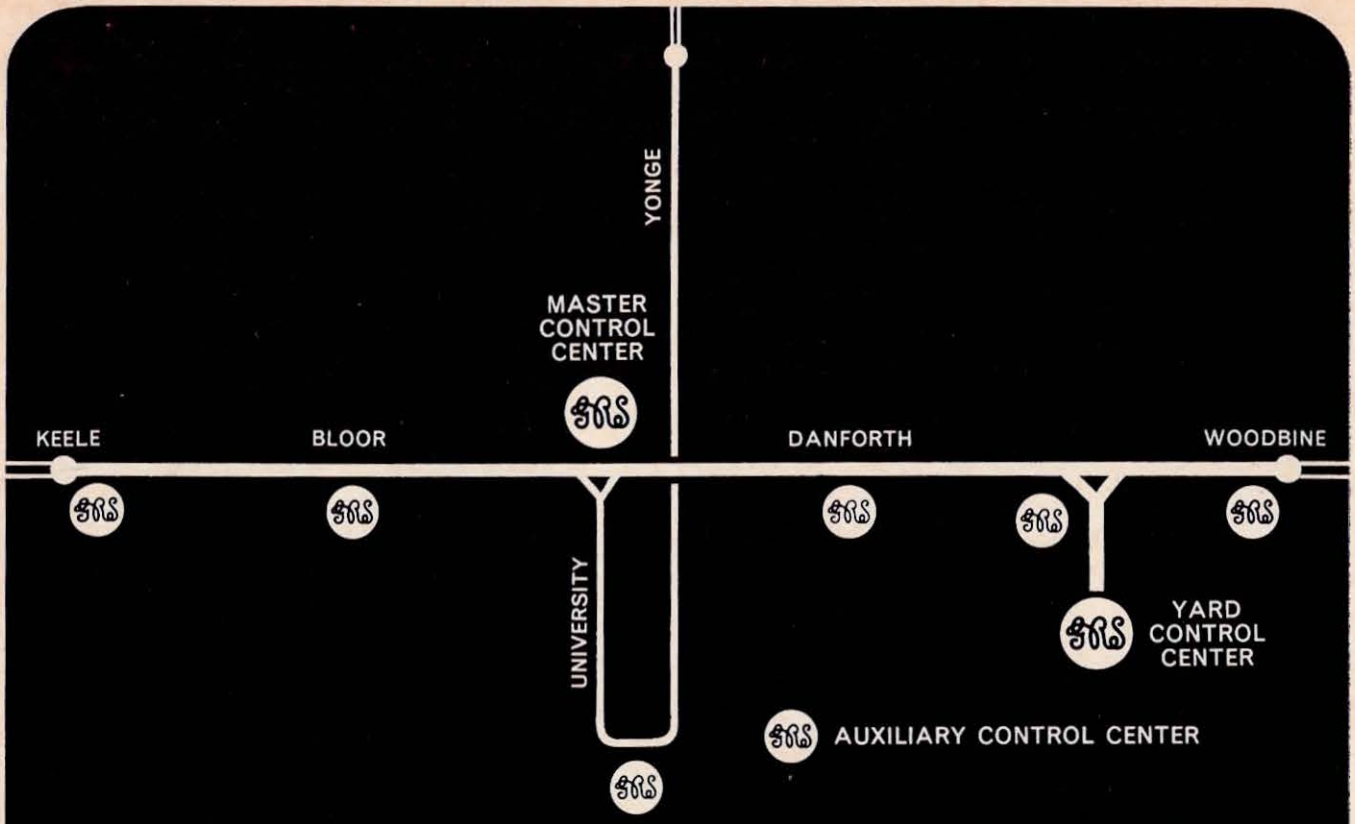
This is not true merely of the United States, Loomis thought: "You can see the rail portents of a better transport future in Britain's planned 'liner trains,' in the Continent's acclaimed Trans-Europ-Expresses, in Japan's high-speed New Tokaido line, in the expansion of mainline networks in Communist lands and the developing nations, in the gathering emphasis in major cities everywhere on building and extending rail transit systems."

. . . but face huge traffic demands, just as we do

The U.S. railroads have most in common, of course, with systems in other heavily industrialized nations. But the world as a whole, said Loomis, "is heading into transport problems of gargantuan proportions." An example he gave from home territory: "Total freight volume flowing between cities in the U.S. could multiply 2½ times by the year 2000, with intercity passenger travel climbing to nearly five times its present high level."

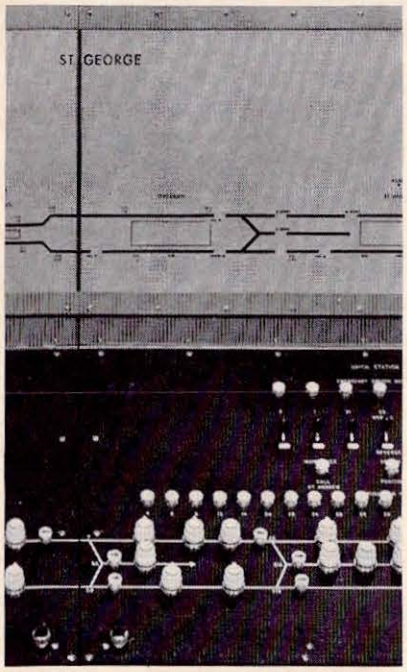
What it takes to do the job

Neither at home nor abroad has road-building proved to be the answer —even with the utmost ingenuity in traffic engineering. The imperative according to the AAR's top officer: "The ultimate in mass transit systems and the development of railways into super-freightways for the high-speed hauling of vast volumes at low costs." What must nations do to achieve the ultimate in rail service? Loomis listed five factors: (1) Eliminate light-traffic, little-used lines and unneeded duplicate routes, consolidating multiple stations, shops, yards and other terminal facilities —trimming railroads down to the trunk and main limbs of the transport tree. (2) Create a smoothly interconnecting road-rail transfer system to assemble and feed volume traffic to mainline traffic routes and permit door-to-door delivery of shipments, making railroads as competitive on service as on price. (3) Undertake bold research programs to develop new equipment to attract customers and new ways of achieving greater efficiency of operations. (4) Invest heavily to modernize plant, mechanize operations, automate services, step up worker productivity. (5) Reduce prices to attract volume shipments, in line with the new railroads' rising economies. "There *are* better ways to run a railroad," concluded Loomis; "for all our nations, this forms one of the brightest beacons of hope for the future."



TORONTO TOO

Specifies GRS Signal Controls for Protected Convenience



Section of master control panel.

Latest addition to the impressive total of GRS-equipped subway mileage, the new Bloor-Danforth section offers its patrons uncompromising safety as well as the convenience of speed and on-time performance.

Monitored from strategically placed control centers, an army of electronic circuits stands continuous guard over each track, switch, and signal. The progress of each train is automatically protected every foot of the way. Signals can indicate "Proceed" only when all switches and signals are properly positioned so that no other train can possibly interfere.

Efficiency is helped substantially by the GRS NX (eNtrance-eXit) interlocking system. The operator pushes two buttons—the rest is automatic. The train is routed to the proper station platform. The train proceeds without waiting. NX provides smooth traffic flow, avoids delay, helps you arrive on time.

GRS congratulates the Toronto Transit Commission and citizens of Toronto on their new subway facility.

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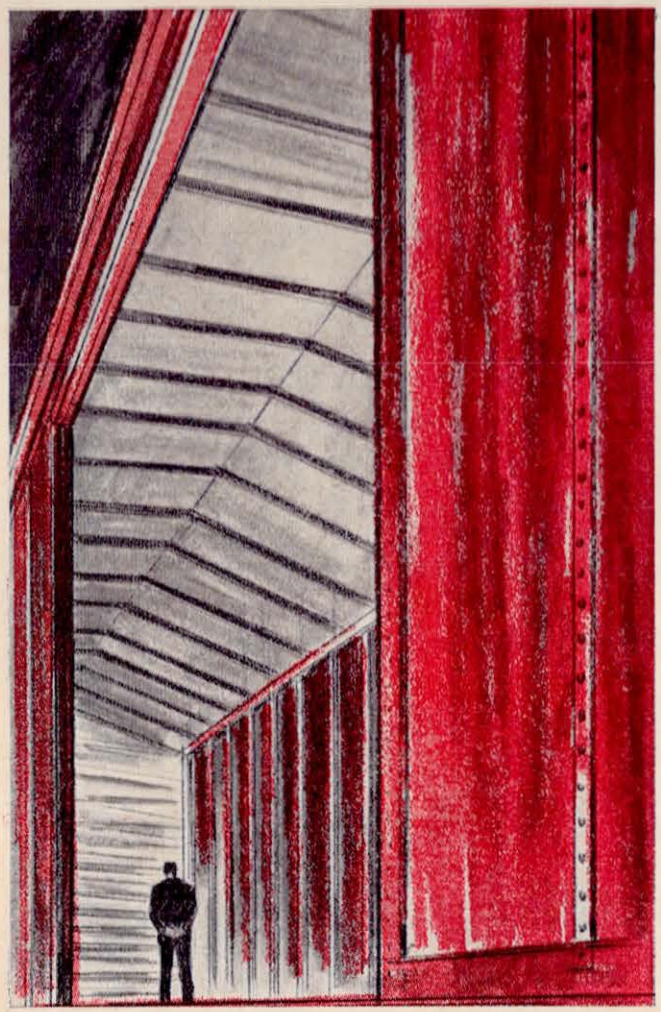
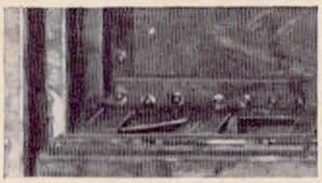
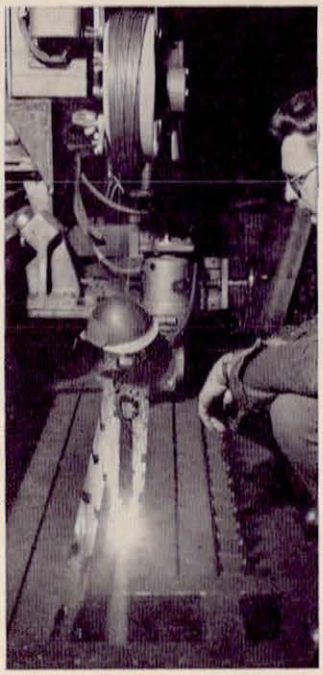




Right in front of your eyes, sides are riveted to the ends. Any extra rivet holes cost you money. More so if your men drilled 'em when the originals didn't line up.

Peek past your feet at the welded underframe. Stringers straight and square to the sill? How 'bout the center sill weld? A submerged arc doesn't need any joint preparation. Costs less for this reason, but is strong and smooth . . . gives 80-100% penetration.

Now stick your head way back in the corner and ease your eyes along the side. Notice welding stress patterns are kept to a minimum. Berwick engineered automatic, low-heat burn-through equipment to eliminate 'em. This equipment also eliminated the cost of welding both sides. Check the special steel plate at the door opening.



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WEEK AT A GLANCE

LBJ sends a message to Congress . . .

From the White House last week came President Johnson's long-awaited transportation message to Congress. Although small in size (17 pages), it was big in scope. proposing the establishment of a Cabinet-level Department of Transportation that would bring together almost 100,000 government employees and nearly $6 billion of federal funds now scattered about in various transportation agencies. The President also asked for $700 million for a six-year highway safety program, and $200 million for a supersonic plane. The recommendations, if accepted by Congress, could have a far-reaching effect on urban mass transportation, transport research and development, passenger safety on land, sea and in the air, and on the development of high-speed air, land and water-going vehicles.

"In a nation that spans a continent, transportation is the web of union," the President declared in his message. He traced the history of transport in this country, then turned to the existing system of transportation:

"Vital as it is, mammoth and complex as it has become, the American transportation system is not good enough. . . It is not good enough when it adheres to custom for its own sake—and ignores opportunities to serve our people more economically and efficiently. . . It is not good enough if it responds to the needs of an earlier America—and does not help us expand our trade and distribute the fruits of our land throughout the world."

The President said that because transportation research and development have been sporadic and largely oriented towards the promotion of a particular means of transportation, the nation today lacks what can truly be called a coordinated transportation system.

calling for a Department of Transportation . . .

Basically, this is what the President is calling for to pull together the executive functions of the various transportation agencies:

A Department of Transportation that would include the office of the Under Secretary of Commerce for Transportation and its various staffs; the Bureau of Public Roads and the federal-aid highway program it administers; the Federal Aviation Agency; the Coast Guard; the Maritime Administration; the safety functions of the Civil Aeronautics Board; the St. Lawrence Seaway Development Corp.

The safety and car service functions of the Interstate Commerce Commission, principally the inspection and enforcement of safety regulations for railroads, motor carriers, and pipelines, and the distribution of rail car supply in time of shortage, would come under the new department. Control of the Alaska Railroad, now under the Department of the Interior, also would switch.

. . . and new emphasis on urban transport planning

As the President sees it, creation of the Department of Transportation would give a big boost to efforts to solve the growing transportation tangle in U.S. cities.

"The future of urban transportation—the safety, convenience, and indeed the livelihood of its users —depends upon wide-scale, rational planning. If the federal government is to contribute to that planning, it must speak with a coherent voice," he said.

President Johnson pointed out that while the Department of Housing and Urban Development bears the principal responsibility for a unified federal approach to urban problems, "it cannot perform this task without the counsel, support, and cooperation of the Department of Transportation." He plans to ask the two secretaries to recommend, within a year after creation of the new department, ways of best achieving cooperation on urban transport problems.

LBJ also wants faster pace in R&D

The proposed Department of Transportation—working with private industry and other government agencies—would step-up and coordinate research and development efforts.

"Under our system of government, private enterprise bears the primary responsibility for research and development in the transportation field," the President said. "But the government can help. It can plan and fashion research and development for a total transportation system which is beyond the responsibility or capability of private industry." He said the Department can help translate scientific discovery into industrial practice.

The high-speed ground transportation research and development program, approved by Congress last year, was characterized as a "long step towards advanced land transportation." And, said LBJ, "this program will be continued at the most rapid pace consistent with sound management of the research effort."

The economic regulatory functions of the Interstate Commerce Commission will stay with the ICC, but the President wants authority to pick its chairman. At present, the ICC's chairman is selected by annual rotation among the 11 commissioners.

GUS WELTY'S LINES ON LABOR

WELTY

• **AT LEAST TWO RAIL LABOR UNIONS** are watching the boom in rail rapid transit as closely as any supplier or railroad man or politician is. And the unions watch it with a mixture of altruism and self-interest — (a) agreeing that metropolitan areas today need what rail-based transit systems can provide, and (b) figuring that somewhere in rail rapid transit there's a spot for at least some of the standard rail labor organizations. Last weekend, for example, the Brotherhood of Railroad Trainmen sponsored a conference in Chicago which attracted management and labor representatives, college and university people, suppliers, government people. And, within the past several weeks, the Brotherhood of Locomotive Engineers has reaffirmed its determination to be in the picture when new transit systems are developed.

THE BRT, THUS FAR, has kept the self-interest angle pretty well muted. But the BLE is being direct about it. Says Grand Chief Perry S. Heath: "As urban centers turn to rail transit as the most efficient and least costly solution to mass transportation problems, it should mean jobs for locomotive engineers. . . ."

HEATH DOESN'T DISCOUNT the problems in getting BLE members aboard the rapid-transit vehicles of the future. Jobs, he says, "will not be there simply for the asking. The planners and designers are . . . working toward completely automated operations, with computers displacing dispatchers and electronic switches replacing motormen. . . . Obviously, the jobs will be different and of a high technical character. Here is where the traditions of the BLE will prove essential."

THE RAIL BROTHERHOODS are, of course, no strangers to mass transportation in the sense of commuter-railroad operations. And the BRT has its Bus Department, with lodges scattered across the country. But the new transit systems are, in effect, agencies of government—and this makes them just a bit different than almost anything the brotherhoods are used to, in the organizing field. Moreover, there are established unions in the transit area, and they won't be taking kindly to new competition. The brotherhoods want in —but the price of a ticket may be high.

• **FOR WANT** of a preposition, the meaning was lost, to paraphrase an old bit about nails and horseshoes and battles. In last week's column, the simple, little word "of" got lost—and an unintended knock at the Brotherhood of Locomotive Firemen & Enginemen resulted. In referring to the protection of people rather than of institutions, the line should have read: "This is admittedly a kind *of* judgment which the Firemen don't believe and don't buy and can't be expected to."

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Suddenly, riding rapid transit will be the fashion!

Outside the San Francisco Bay Area, other cities will want to know what makes the BARTD project a success. We think it's the entire package of passenger appealing comfort. The attractive and unusual station design. Generous parking facilities. Smooth, gliding speeds up to 80 mph. Fully climate controlled car interiors. The wide measure of deep-cushioned seats (22 inches per passenger). And the feel of luxurious carpeting under foot.

It's easy to see how BARTD car design fits into this passenger-capturing new picture.

Riding transit in the Bay Area—and all over America—is becoming the fashion . . . the fashion we are delighted to help create.

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ST. LOUIS CAR DIVISION
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The BARTD car design created by: General Steel Industries' St. Louis Car Division and Sundberg-Ferar, teamed with BARTD engineers and their engineering consultants, Parsons Brinckerhoff-Tudor-Bechtel.

CITL hears views on 'total distribution'

'More sophisticated approach' is predicted as cost knowledge, computer techniques, carrier rates and services are improved.

Canadian shippers, meeting at Toronto Feb. 22-24, got some clear predictions as to what the future may hold for freight transportation.

The occasion was the Traffic & Transportation Conference which concluded the 50th anniversary meeting of the Canadian Industrial Traffic League. The speakers who ventured to look ahead were Sam Hall Flint, traffic vice president, Quaker Oats Co., Chicago; W. Miller, general freight traffic manager, rates, Canadian Pacific, Montreal, and H. O. Whitten, president, H. O. Whitten & Associates, Washington, D.C.

• **'A better chess game.'** Distribution, said Flint, "is going to become a better chess game, in which we will look and plan three or four moves ahead, instead of just one.

"With better technicians and better economists engaged in distribution, and with greatly improved knowledge of costs, we are going to develop a much more sophisticated system than we have had in the past. There will also be a much more unified approach, in which the efforts of material suppliers, manufacturers, distributors and retailers will be closely coordinated. There will be more emphasis on reducing over-all distribution costs instead of simply shifting them from one element to another."

More specifically, Flint predicted a "fabulous growth" for unitized shipping. Quaker Oats, he said, finds that such shipping cuts damage, lowers costs, reduces handling time, and saves customers up to $40 per car in unloading. "Yet only 15 % of grocery shipments are now unitized. This leaves 85% to go."

On the carrier side, he looks for an improvement in over-all rail transit times; better equipment and pricing, and improved computerized control of car movements. Such control is already "beginning to pay off" for companies like his and others which have gone into such control on their own. Other future possibilities are more bulk shipping, and consolidation of shipments from different manufacturers into larger total quantities.

• **Rates, equipment and service.** Remarks by Miller, though made at another session of the conference, bore out in detail much of what Flint said in general as to the part railways can play in improving over-all distribution.

He looks, in detail, for "possible application of the agreed charge principle to inbound raw materials and outbound finished goods; freight rates designed to encourage regularity of shipments by providing an incentive to the regular shipper; carload incentive rates, to encourage better utilizatioin of rail equipment and reduce unit costs; and joint rail-truck rates."

As to the latter: "Division of rates between railways is not simple. Between two competitive carriers it will be even more difficult. Still, if shippers and carriers both stand to benefit from this type of cooperative rate-making, I am sure the problems can be resolved."

Miller, like Flint, anticipates a continuing improvement in rail service, and especially in speed and reliability of freight trains. He looks for more unit trains, "when large tonnages are moved long distances. But a trainload a week is not a unit train. It is a special train, operation of which may be costly compared to alternative ways of handling the same amount of traffic."

Cars and containers

Cars of the future, he suggested, are likely to emphasize faster and less costly loading and unloading, and better protection for their freight. He sees "containers, which reduce handling costs, as potentially a very important advance in the technique of transportation. Perfection of a container completely interchangeable between the several modes could be a breakthrough comparable to the introduction of a uniform railway gauge."

• **Tariff computerization: 'Exciting'.** "One of the most exciting and far-reaching new developments in transportation today," said Whitten, "is the current rush toward computerization of freight tariffs and rates—a result of joint effort on the part of carriers, shippers and government agencies."

"Solution of the problem of computerization of rates and tariffs lies first with the traffic man himself," Whitten said. "He is the one who will have to unlock the door by preparing the basic data for application. Only he can understand the present complexities that have been built up over the years. Only he can make the decisions that must be made if tariff and rate computerization is to be made practical and efficient. It will be easier for a traffic man to learn enough about data processing capabilities to help himself than for data processing men to learn the intricacies of the 'art' of rate-making.

"Computerization of carrier rates and pricing," he emphasized, "is entirely dependent upon development of a system of standardized codes for repetitive kinds of data." For that reason he "hopes leaders in the industry will see the need for working together on a common solution before it is too late to bring back together the very diverse present approaches. If they don't, we will wind up with a chaotic situation in tariff computerization very similar to conditions which exist in present-day manual tariff applications. If this occurs, we will have gained little or nothing from the tremendous advance in technology available to us."

Other conference speakers dealing with distribution included Warren Blanding, executive vice president, Marketing Publications, Inc., Washington, and Morris Carley, consultant, K.C.S. Ltd., Toronto.

The former, in connection with a slide and chart presentation of distribution problems and organizations, suggested that "in time, shippers will be able to forecast transportation requirements. Carriers will be able to predict the cost of handling those needs, and file rates based thereon. The ICC will be able to use computers as a basis for acting on such rates."

Carley outlined an 11-point program for preparing, organizing and making a distribution study.

• **Seminars.** The equivalent of a full day was devoted to membership seminars on the "nuts and bolts" of industrial traffic management. Emerging from these sessions were such conclusions as:

—Rates on small and minimum shipments, by both rail and truck, will increase faster than the dollar value of the products involved. Truck rates are likely to rise first, because of higher wages and a trend to charging what the traffic will bear, but railways will take advantage of truck increases to raise their own charges. Carload and truckload rates, on the other hand, will tend to be held down by competition, including the threat of private trucking.

—Railways are doing about all they can (and more than trucks) to reduce freight loss and damage. Bad spots are in LCL movements; in terminal switching, especially where it is done manually; and in the severe damage resulting if a long, fast train happens to be

derailed. Further help in cutting L&D may be expected from better packing and bracing; more cars equipped with load-protecting devices; more mechanical handling of freight, by pallet or lift truck; and better documentation to keep shipments from going astray.

—Regular LCL shippers, in general, are getting good service, especially to and from larger cities. But there is some trend to concentrate LCL movements into larger lots.

—Carrier freight salesmen are better, and better informed, than they used to be. But they are sometimes hurt by inefficient operations.

—Uniform classification of freight for all transport modes would be desirable. So would greater consolidation to cut down number of classifications, and better shipper-carrier liaison on product descriptions.

● **Business.** Business sessions of the CITL's Golden Anniversary meeting were relatively quiet, with most committee reports being submitted and accepted for information only.

The Railway Classification and Rate Committee stated, however, that user charges for hydraulically cushioned cars, as published in Canadian Freight Association Tariff 9-G, had been cancelled as requested by the League. The same committee reported that it had not opposed an increase in local switching charges; and had considered but not requested an extension of four-mile interswitching limits. It further stated that "the variety of size and shape of shipping containers makes it impractical and premature at present to try to develop a national tariff for container charges."

The Equipment Detention Committee reported that the proposed increase in demurrage charges, opposed by the League, is pending before the Board of Transport Commissioners, which has reserved decision.

BTC approval for establishment in Canada of Plan III piggyback was reported by the Railway Freight Services Committee. Rates for the service, the committee said, "will be established on an individual shipper basis regarding commodities and points; each case will be examined on its merits." Railways, the committee further stated, are not yet prepared to permit free return of empty pallets, but are continuing to study both that and the possibility of a single classification for merchandise service.

The proposed five-year plan (RA, Jan. 31, p. 28B), which would increase League dues to provide funds for additional staff to handle expanded activities, was referred back to the board of directors for further study.

All incumbent national officers were reelected. ■

WATCHING **WASHINGTON** WITH WALTER TAFT

TAFT

SAGA OF THE 'SHASTA DAYLIGHT'—Southern Pacific's "Shasta Daylight" is one of America's great trains. It operates over a stunningly scenic route between Portland, Ore., and Oakland, Calif., clicking off 715 miles in just over 16 hours. It has also, in recent years, piled up some stunning losses for the railroad: $298,000 in 1963, $311,000 in 1964, $435,000 in 1965. Last year the SP decided to file for discontinuance. In its petition to the ICC, the road pointed out that its overnight "Cascade" service between Portland and Oakland—much favored by businessmen, and by an increasing number of tourists who would rather sleep than soak up scenery—would continue to serve the West Coast corridor.

Now, the hearings have been held and the decision of ICC Examiner Robert H. Murphy is in. It's negative. While conceding that SP's above-the-rail losses on the "Shasta Daylight" in 1965 were at least $325,412, he nonetheless feels that the service "is necessary for purposes of business, health, education, pleasure and recreation." His report (in Finance Docket No. 23756) went to the Commission Feb. 17; interested parties have 30 days from that date to file exceptions.

UNDER-PROMOTION?—Examiner Murphy contends that the "Shasta Daylight" has been underpromoted. He cites evidence which, he feels, "shows that contrary to promoting service on the subject trains, Southern Pacific engages in the converse in that (1) its employees are encouraged to sell airline tickets at stations along the route of the subject trains [a practice which SP defends as part of its total transportation service], (2) it does not pay commissions to rail travel or tour agents, (3) it does not honor national credit card systems, (4) it does not provide telephone answering or free enterprise exchange service, (5) it does not sponsor family plan fares, and (6) it presents numerous difficulties in the way of those seeking appropriate travel space by a variety of inconveniences, such as remote locations of its ticket offices . . . and awkward procedures used in allocation of space requirements."

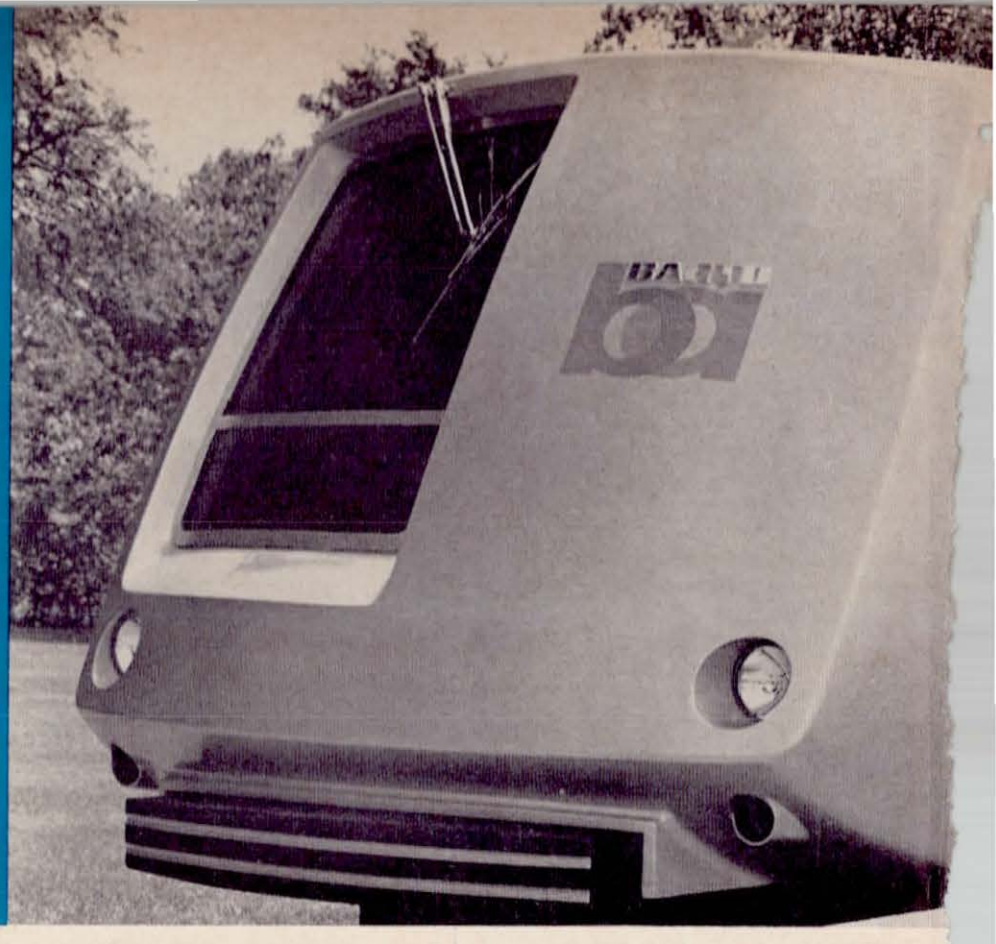
WHAT THE RECORD SHOWS—Actually, the record cited by Examiner Murphy himself shows that SP did vigorously promote the "Shasta Daylight" trains during the first four and one-half years of their operation, and "that policy was maintained at a high level until 1956 when $79,000 was expended for that purpose." But with the advent of the jet and fast-freeway age, patronage declined to the point where SP found that "additional revenues generated as a result of advertising were less than the cost of the advertisements." Statistics submitted by the SP underscored the trend: Average daily passenger loadings per train during the summer months of June, July and August rose from 466 in 1949 (the year service was inaugurated) to a high of 478 in the summer season of 1955, and thereafter steadily declined each year to a point in 1965, when the figure reached 99. The "Shasta Daylight" is now a summer-only train.

BUT MR. MURPHY IS UNIMPRESSED—None of these arguments impressed Examiner Murphy. He *was* impressed, though, by "the sincere reluctance of residents in the area to witness the demise of the subject train service, the route of which traverses one of the most scenic areas in the United States." In any case, he concluded, the losses on the "Shasta Daylight" are a drop in the bucket for "a large financially healthy carrier enjoying a continuing growth trend."

He failed to suggest how long any business enterprise could continue to enjoy such a growth trend if compelled to sell, at substantially below cost, a product for which the public was no longer clamoring.

(Mr. Taft is on vacation. During his absence, this column is being written by other members of the staff.)

San Francisco's Bay Area Rapid Transit District came under sharp attack recently from a powerful local newspaper — so sharp that BART General Manager B. R. Stokes called it "Project Assassination." The San Francisco Chronicle sent a reporter around the world to gather information on other transit systems before publishing its series. "Have we been fooled?" demanded the Chronicle. To get at the truth of the matter, Railway Age sent its own transit editor, Joe Asher, to San Francisco. Asher has spent most of the last three years studying and writing about the world's transit systems. During a 10-month writing assignment in Europe last year, he inspected the rapid transit networks of London, Paris, Rome, Milan, Madrid. "Wherever I went," says Asher, "the question from European transit officials was always: 'Tell me, please, what is the latest news from San Francisco?'" Here is "the latest news from San Francisco."



BART's growing pains: Signs of a healthy baby

By Joe Asher
Transit Editor

SAN FRANCISCO

It's no simple matter spending one billion dollars. The men at San Francisco's Bay Area Rapid Transit District are finding this out, as they get down to the hard business of building a complete 75-mile transit system from scratch.

After years of detailed planning and preparation, system construction is well on its way: BART's engineers are testing out equipment, putting up the first structures—and digging. In the last two months, top BART officials have had to face some tricky decisions on design, on costs—and fend off some outside harassment, as well. But on the whole, they're philosophical about it: nothing comes easy in this world, after all. They're aimed in the right direction, and solidly on course, they feel.

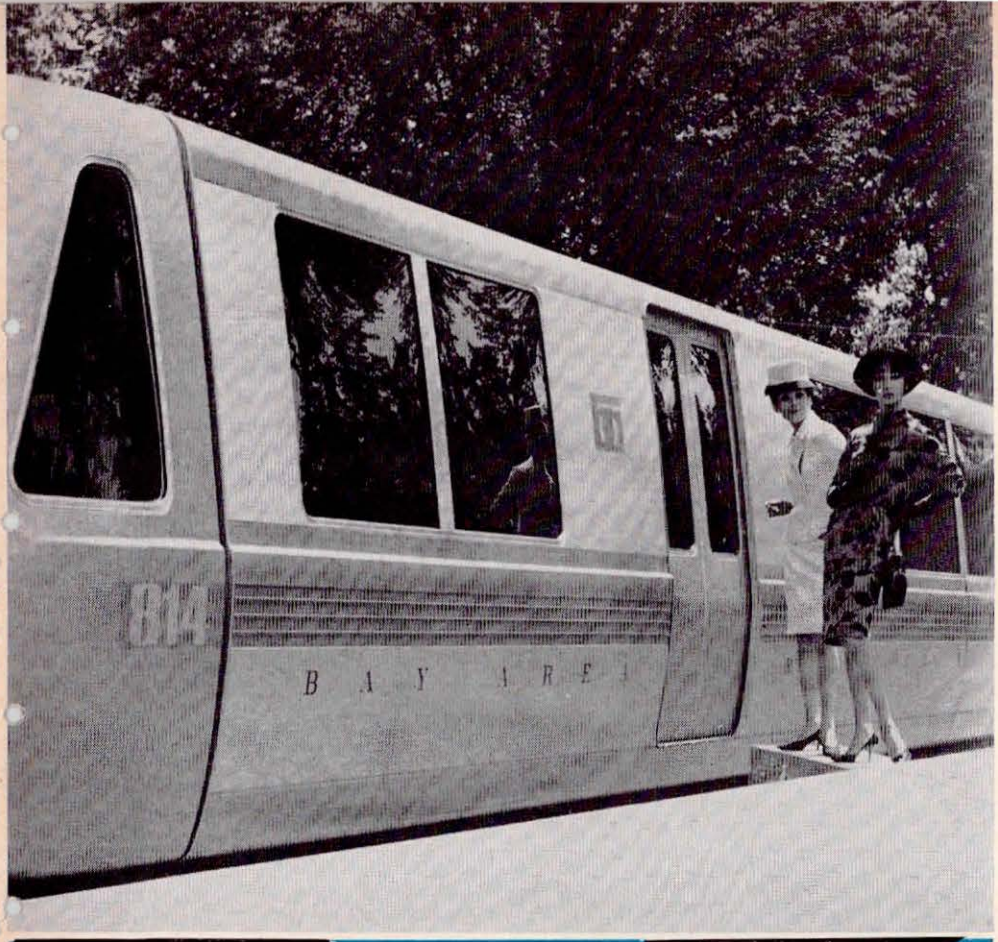
"We have had some stormy moments lately,"says BART Chairman and President Adrien J. Falk. "But it boils down to a storm in a teacup. I am as confident as ever that our system when it is completed will be as modern and attractive as any in the world."

"It will be a mecca for the transportation industry," adds General Manager B. R. Stokes.

• **How far along is BART?** Since last fall, equipment-testing programs have been in high gear at the Diablo test track (RA, Aug. 2, 1965, p. 16). Automatic train control tests have just come to an end. Tests of car components, propulsion systems and braking will continue for some time, with the aid of BART's three lab cars. Target date for winding up all tests at the track is July 1.

Automatic train control specifications should be ready for competitive bidding around June or July, and car specifications (BART will order 450 cars) by the end of the year.

Automatic fare-collection tests will be conducted elsewhere during the summer and fall, with competitive bids on



LAST WORD IN DESIGN

BART's transit car was designed by Sundberg-Ferar, one of the world's top industrial designers.

the equipment order likely sometime early next year.

On the construction side, the biggest single contract was just awarded. Trans-Bay Constructors, a contracting consortium, submitted the low bid ($89.8 million) on the twin-bore tunnel that will connect San Francisco and Oakland under the Bay. State approval (necessary in this case) is due this week, and work is due to begin this month.

● **Ready for riders in '69.** The tube —designed to withstand earthquake shocks considerably greater than those the Bay Area received in 1906—will connect with the coming Market St. subway, begin near the Ferry Building at the foot of Market St. and submerge to a depth of 130 feet below the surface of the Bay, before reaching Oakland. As matters stand now, transit riders can expect to be whisked in eight minutes flat between downtown Oakland and downtown San Francisco by the fall of 1969.

Aside from the Trans-Bay Tube, about 45% of final design of the system is set. About 60% of all real estate has been appraised, and 50% actually acquired.

All over the East Bay area, individual segments of tunnel, surface or aerial structures are in the construction stage. The biggest so far is the Berkeley Hills Tunnel—twin 3.5-mile bores between Oakland and Orinda, which are 25% finished, and due for completion in July 1968.

A mile-long segment of aerial structure is well along in Albany; architectural design of 24 of BART's 37 stations is under way. Relocation work for utilities has been going on for some time in both downtown San Francisco and downtown Oakland.

● **One delay to be proud of.** Some delays have shown up. The test-track program is running about six months behind schedule. Also, some construction contracts are a few months behind schedule. This might mean a corresponding rollback of the opening of the first segment of the system scheduled for 1968, and of the complete network, due in 1971.

BART officials are not unduly discouraged over the delays; they attribute them to three factors, of which two were beyond their control, and the third

AREA-WIDE NETWORK

BART will have 16 miles of subways and tunnels, 31 miles of aerial lines, 24 of surface lines—a regional system.

Exclusive Chronicle Report
Bay Area's $1 Billion Rapid Transit Fantasy
World Transit Survey
The Wrong-Way Snarl
The Sad, Strange Facts About an El in Berkeley
BART in Deadlock on Subway Bid
Worldwide Survey
Backward Step For Bay Transi
BART Progress Report --Not Enough Progress
BART Deadlock on Subway Bid
Chronicle Survey
Trains That Run To Wrong Places
'Conflict' Stalls BART
Rapid Transit Routes Ignore Where Bay Area Riders Want to Go
World Transit Survey
BART's Outdated Els

FANTASY VS FACT

"In my opinion, this series was an effort at 'project assassination,' a tactic which this newspaper has used before against a number of worthwhile public works projects. And while I think the effort was largely unsuccessful, despite the use of inflammatory headlines to position the reader even before he got into the articles, it did serve to tarnish the very bright luster which this project has been accorded by transportation experts and public officials throughout the world.

"The greatest damage may have been caused nationally. For instance, this series could have a direct and important influence on the interest rates at which the District is able to market future issues of bonds. The damage may not have been as great locally, only because residents of the three counties have been exposed to this type of effort before and because they can turn to other sources of accurate information about the District and can, in fact, see the physical evidence of the products of our endeavors.

"We could wish that our District would be judged more on its very real accomplishments to date rather than on vague, uninformed and misleading fears of what we may or may not produce in the future.

"It will be some time before the damage created by this unfortunate series of articles can be corrected. Our tasks . . . will become even more difficult of accomplishment in the future than they have been in the past."

—B. R. Stokes
General Manager, BART

is something they're proud of.

For one thing, when creation of the system was approved, BART had to settle routing of its lines through each and every community due to get transit service. In some cases, this took time.

For another, a 1963 taxpayer's suit challenging the BART project was settled in BART's favor, but this, too, took time.

For still another, when the program went to the voters for approval, the test-track had not even been contemplated. By putting this 4.5-mile segment of the 75-mile network in operating order first, BART gave itself a full-scale proving ground for all the latest developments in transit technology.

● **The financial picture.** Popular backing for BART was shown in 1962, when voters in three counties of the Bay Area approved a $792 million bond issue to underwrite the capital cost of building the system. The State of California in turn agreed to turn over $133 million in surplus bridge tolls to finance construction of the Trans-Bay Tube. A further $71 million revenue bond issue provides cash for buying rolling stock.

BART made headlines some weeks ago, when a large construction firm turned in a low bid that was way over cost estimates. The fact that the low bid was so far out of line with what had been figured on gave rise to a lot of speculation: Is BART in trouble on costs? Will the Bay Area need vast additional sums to complete its system?

● **Keeping a promise.** BART officials throw cold water on such speculation. Says Falk: "We are determined to keep our promise to the voters." Says Stokes: "If we can't build the system for $792 million, we're going to come awfully close."

What happened in the case of the controversial bid was this:

The 1960 cost estimate for building a 21-block stretch of subway (including two stations) in downtown Oakland was $36 million. In view of inflation, design modifications, and other factors, the cost estimate was up last year to $48 million. Then bidding opened, and the low bid came in at $61.5 million.

Parsons-Brinckerhoff-Tudor-Bechtel (BART's joint-venture engineering consultants) rechecked their figures. BART's board and management called in outside consultants for a further check, and got financial advice from their bond consultants, Smith, Barney & Co. All had the same story to tell: the bid—not objectionable in itself—was more than BART could afford.

A change in design of the Oakland subway became inevitable, and the bid was allowed to expire without action. PBTB then came up with a less expensive design that would still meet

the basic criteria established for the Oakland subway.

Initially, some of BART's board members were apprehensive: a change of design might mean a cheap design—and BART would wind up a first cousin to the old Third Avenue El. This fear does not seem to have been borne out, and the majority opinion prevailed.

● **No confidence trick.** A cheaper design but not a cheap design—is it a confidence trick? Here's how BART and PBTB officials explain it: When calculations were first made of expected traffic volumes, it was thought that, in addition to a north-bound and a south-bound track, a third, reversible track would eventually be necessary, and in the very distant future, a fourth track might also be necessary. The design submitted to the voters in 1962 showed the third track "designed in," and room for a fourth track, should it ever be needed. By the time bidding opened, the design had been modified to show an actual structure to accommodate such a fourth track.

In essence, what PBTB has now done is to return to a variation of the first design, and remove the fourth-track structure. As in the original case, provision can still be made for it, if and when it is needed. The new design is estimated to cost about $44 million—$17 million less than the Oakland subway might have cost otherwise.

But if one major cost estimate was that wide of the mark, is it a bad omen for future bidding?

Not necessarily, say BART men. So far, most low bids on construction have been at or below the engineers' cost estimates. In one big case—the Berkeley Hills Tunnel—a sizable saving was effected, when the low bid turned out to be well under the cost figure the engineers counted on.

● **Inflation.** On the other end of the scale, however, is the Trans-Bay Tube, which with costly approaches and auxiliary facilities, may come in for a lot more money than the $133 million earmarked by the State of California.

It's the bids on that order that BART officials have in mind when they talk of facing a sticky inflation problem.

Falk recalls that when it was first proposed to include not only a contingency factor in the bond issue, but an inflationary factor as well, this was considered "leaning over backward" in the direction of financial conservatism.

The inflation factor was put in, but even so, wages and materials costs have risen more sharply than anybody could have foreseen. Financial journals around the country spotlighted the recent wage gains of the construction trade unions—gains far in excess of President Johnson's guidelines.

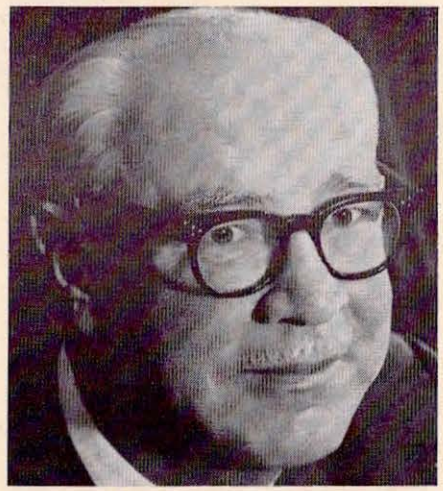
The West Coast has felt the rising cost of living sharply, and—what makes some PBTB engineers a little nervous—the Viet-Nam war has absorbed a lot of contracting capacity.

● **No aspirin bottle yet.** But transit men in the Bay Area are not reaching for the aspirin bottle. Says Falk: "If we hadn't held the line on the Oakland subway bid, it would have meant opening Pandora's box—but we did hold the line. This served notice that we were determined to keep costs from getting out of control."

Stokes put it another way: "It's fortunate we spotted the inflationary trend so early in the game, with just 10% of our total project funds allocated. We have an excellent opportunity to exercise caution in allotting the remaining 90%."

● **All this and the Chronicle too.** At the same time that BART officials have had to weigh ticklish business and engineering decisions, they came under fire from a San Francisco morning newspaper, which ran a series of articles purporting to "expose" BART and its "$1 billion transit fantasy."

Most of the charges are of the sort that at another time would have raised indulgent smiles at BART headquarters. At this time, however, when Bay Area transit men have their hands full on other fronts, the net effect could be to increase the appearance of a program in trouble.



"The problems facing the Bay Area Rapid Transit District are generally due to inflation which has occurred since the original project was drawn up some four years ago.

"It is the sincere desire of the people of San Francisco to obtain the modern, efficient, well-designed subway and transit system they voted for originally. San Francisco is now relying on the BART directors to provide the system as planned. We have every hope that they will provide the modern, efficient system the people want."

—San Francisco Mayor John F. Shelley

"This mass transit system is a victory of vision for men who started 12 years ago to make it a reality."—President Johnson (shown at BART dedication with BART Chairman Adrien J. Falk and California Governor Edmund G. Brown).

Here are some of the accusations:

—The construction program is 'way behind schedule.

—BART is in serious financial difficulty, supposedly "near-bankrupt."

—The trains won't go where the people want to go.

—The system is full of dubious engineering, and was planned by a man without a license to practice engineering.

—Aerial structures will be unsightly, trains riding them will be noisy, and they'll depress real estate values.

BART officials responded. Falk expressed the hope that "thinking people don't and won't pay any attention to it." Stokes made public a memorandum prepared for his board of directors in which he termed the series "Project Assassination" (*see page 18*).

As noted above, Stokes pointed out that only 10% of available funds have in fact been committed—and to say that BART is "near-bankrupt" is, to say the least of it, erroneous.

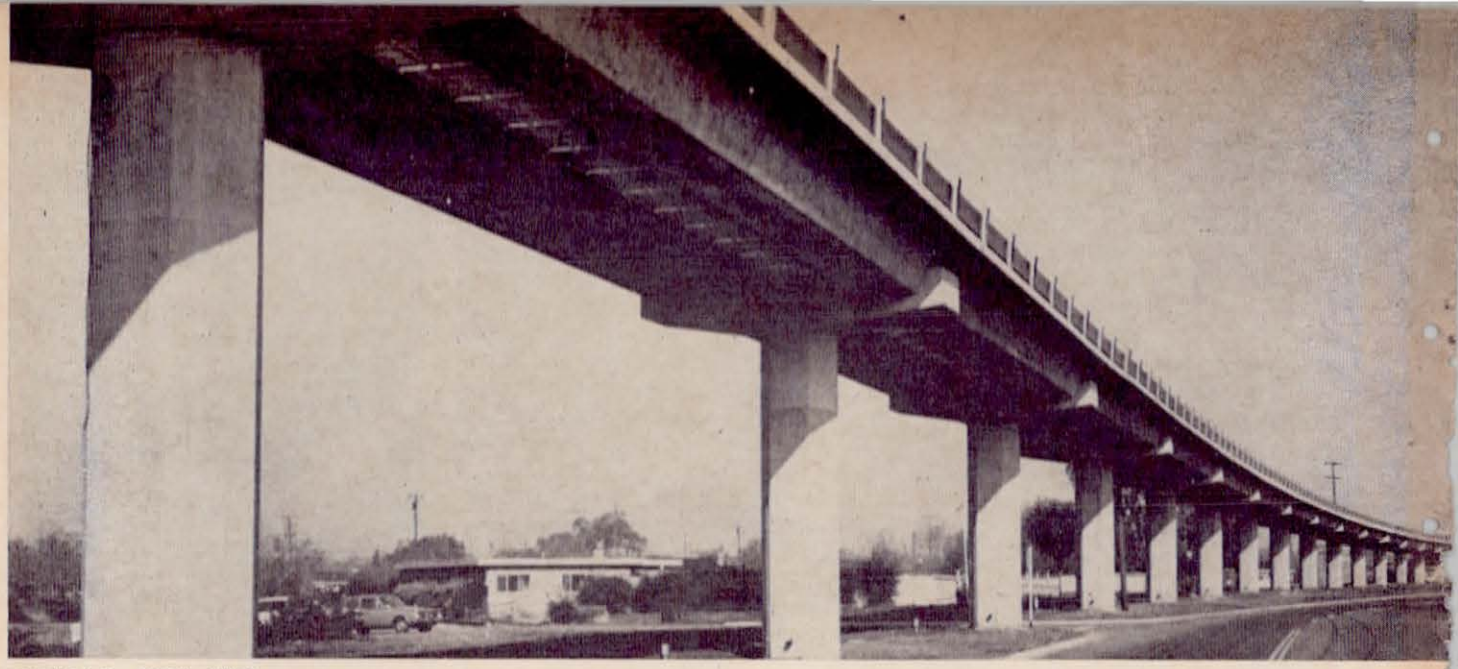
● **An editorial change of heart.** He also pointed out that the same newspaper had heartily endorsed both the bond issue and the caliber of the BART planners back in 1962.

As for the program being behind schedule, BART officials retort that they were the first ones to say so—and publicly—when various communities insisted on protracted routing hearings.

At Parsons-Brinckerhoff-Tudor-Bechtel, reflections on their engineering competence drew reactions ranging from incredulity up to patience-strained-to-the-breaking-point.

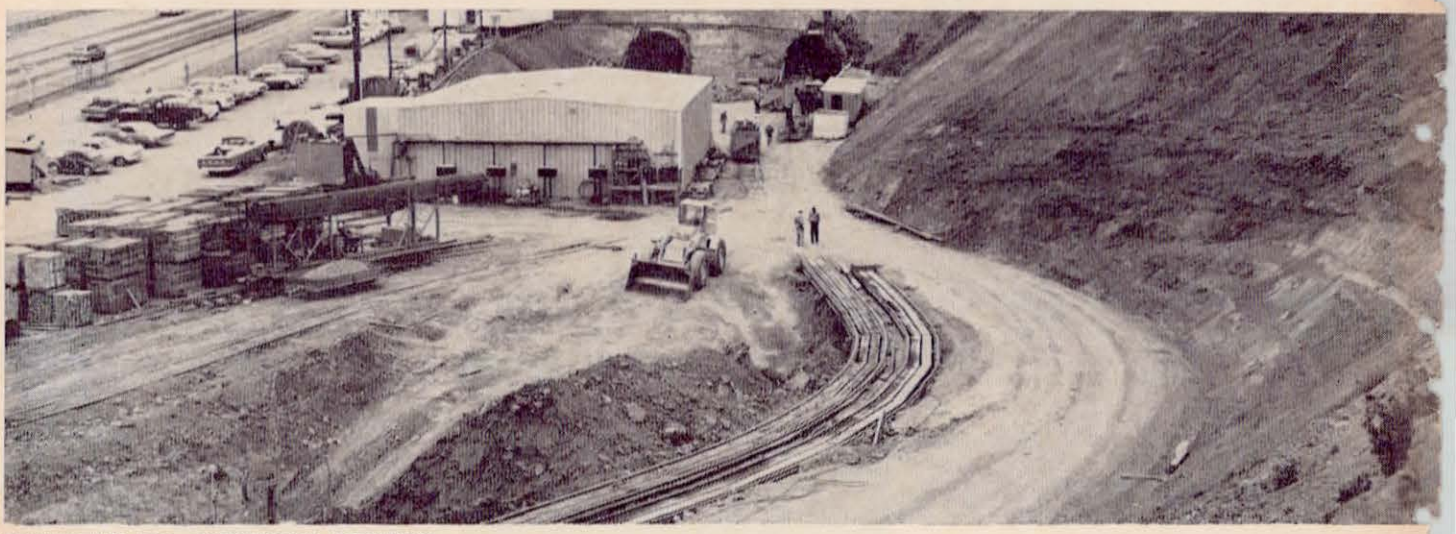
Walter S. Douglas, chief of the joint-venture consultants, described the articles as "most regrettable."

Another senior PBTB engineer went



AERIALS, NOT ELS

World-famous architects designed graceful structures going up in East Bay area. Transit ride will be fast, smooth, noise cut to a minimum. Shown above is Concord test track in Contra Costa County.

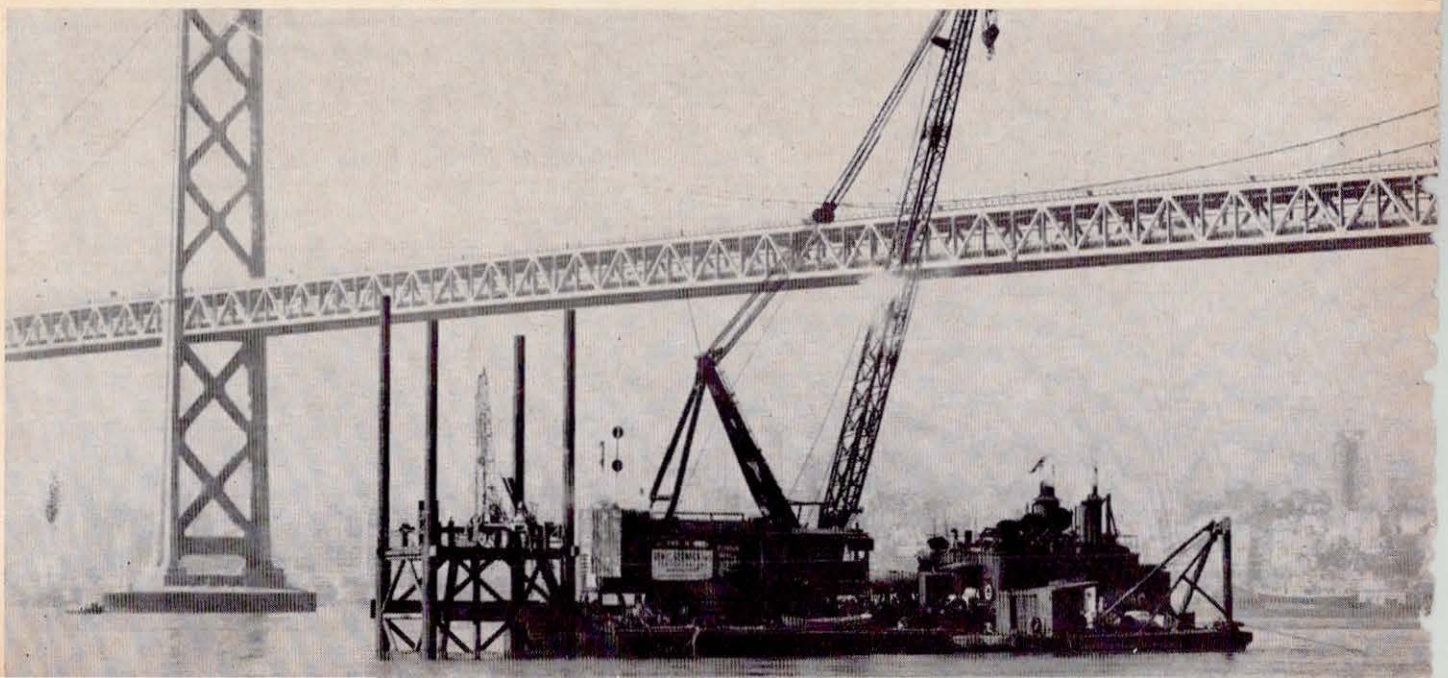


TUNNELS TO SHORTEN ROUTES

Work on the twin-bore Berkeley Hills tunnel is far advanced. The tunnel will link Oakland with Orinda.

OVER AND UNDER THE BAY

Preliminary work has begun on the Trans-Bay tube. An auto trip over the Bay Bridge can take 30 minutes at peak periods; it will take eight minutes by tube, starting in 1969.



further: "A little knowledge is a dangerous thing."

He pointed to a row of cabinets, explained that they were full of origin-destination figures, and said, "Do you think by this time we don't have an idea where the people want to go?"

Like Stokes, he insisted that 95% of all peak period travellers will be able to move along the system to downtown San Francisco with no change of trains.

Accusations that the system was planned by an engineer who was not a licensed engineer brought the retort that just such a charge had been raised in the 1963 tax-payers' suit—and been thrown out of court.

Architects of world prestige were in on the planning of the aerial structures—which are a far cry from the elevated lines of 50-year-old systems.

As far as noise levels are concerned, the engineer reiterated that the system "will be as smooth and quiet as anyone knows how to make it."

Detailed engineering questions drew detailed engineering answers from men not accustomed to seeing laymen seize upon this or that isolated statement and make it serve for the whole.

● **Nothing is 'frozen'.** But BART General Manager Stokes had the last word on that: Charges that BART is committed to this or that operating procedure are just not true, he said.

"On the second day of operation, we may not run the same schedule as on the first. On the third day, it might not be the same as on the second. The important thing is that we have the built-in flexibility to take the people where they want to go, when they want to go.

"We do not 'freeze' designs or programs until the very last minute, so we can take advantage of the newest thinking—the latest in technology."

● **The positive side.** In spite of these attacks, the men at BART prefer to concentrate on the positive side. The impact of a transit system on the economy of the area is obvious—but the time to figure out how to get the most mileage out of it is now, as the network takes shape.

The Bay Area Council, a cross-section of leadership in business, labor, civic affairs has a long record of supporting BART—and working with it.

Within the city of Oakland, important downtown redevelopment is planned with BART very much in mind: the city will have three downtown stations.

A $60 million plan for revitalizing the downtown business section is being upgraded and expanded. Figures show that with rapid transit, a core area with 18,000 employees and four million square feet of office space in 1959 can count on over 30,000 employees and more than seven million square feet of office space by 1980.

Within San Francisco itself, the economic stakes are still higher.

The privately-financed Market St. redevelopment project has seen $150 million put into construction along the downtown route of BART, and another $200 million on the way.

Now under study is a public-private San Francisco "Corridor-Project," that will expand the scope of the Market St. work. The Corridor is alongside the BART route from the Ferry Building, up Market St., and all the way out to the terminus at Daly City.

On a smaller scale, another eight cities along BART routes have redevelopment projects in either the talking or the study stage.

● **The meaning of BART.** Is BART going to be just a new mode of transportation—or does it have wider significance?

In June 1964, at BART groundbreaking ceremonies which drew President Lyndon B. Johnson, Governor Edmund G. Brown of California and other top political figures, LBJ had this to say:

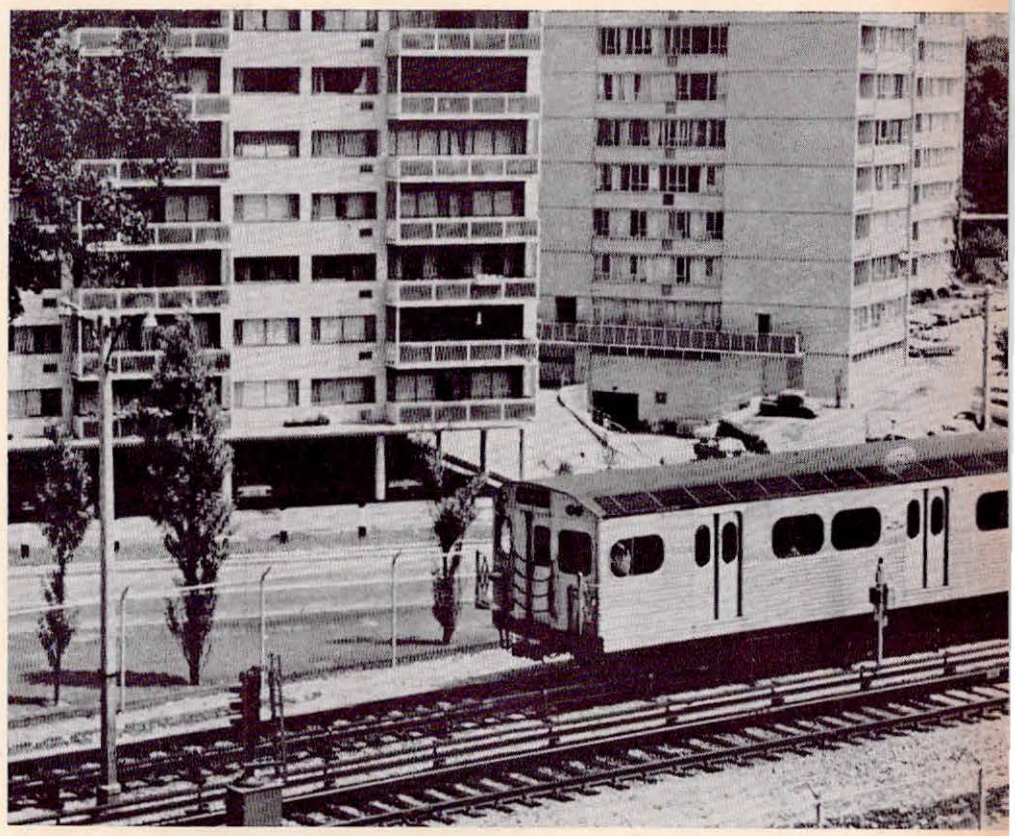
"Those who believe the frontiers of America are closed should be here today. The dreams and deeds represented by this ceremony prove that the era of pioneers is not over—only the area of pioneering has changed . . . This mass transit system is a victory of vision for men who started 12 years ago to make it a reality."

Two weeks ago, S. C. Beise, Chairman of the Bay Area Council (retired president of the Bank of America and current chairman of the Bank's Executive committee) underlined the meaning of BART for the Bay Area:

"We feel rapid transit is going to be one of the most important developments ever to take place in the Bay Area by providing high-speed transportation, throughout the three counties it serves, by the stimulus its very construction will give the area's economy, and by what it will do to integrate the area as an economic, geographic unit.

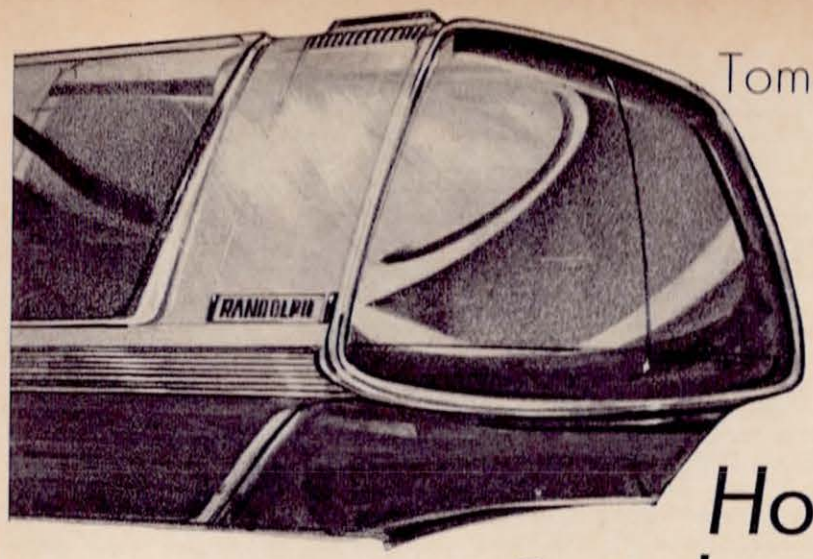
"We feel the progress made by the District (BART) in the face of serious obstacles and difficulties beyond their control, has been notable and are confident the construction of the planned system will continue to proceed according to schedule.

"There is no question but what inflation, brought about by national and international situations, has created a financial problem for the District, but we believe this difficulty, while serious, is not insurmountable, and will be overcome. In short, we believe in rapid transit as strongly as ever and are enthusiastic about the positive impact it will have on the future of the Bay Area." ■



'DEPRESSED' REAL ESTATE VALUES?

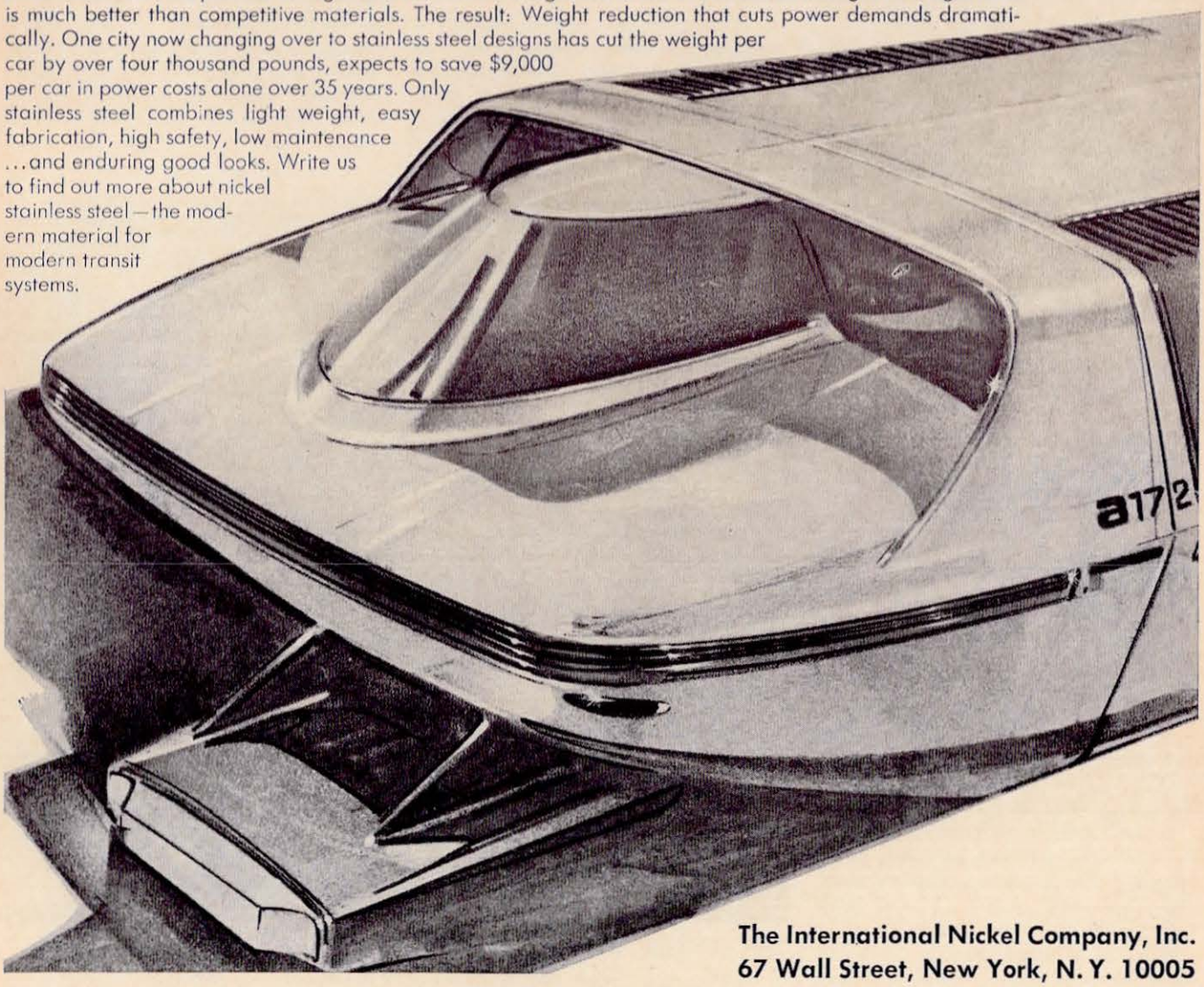
In Toronto, new surface lines made property values soar, not drop.



Tomorrow's Transit . . .
Today's Reality

How Nickel Stainless Steel cuts modern transit power costs.

Nickel stainless steel puts the strength **in** and takes the weight **out** of car structures. Its **strength-to-weight** ratio is much better than competitive materials. The result: Weight reduction that cuts power demands dramatically. One city now changing over to stainless steel designs has cut the weight per car by over four thousand pounds, expects to save $9,000 per car in power costs alone over 35 years. Only stainless steel combines light weight, easy fabrication, high safety, low maintenance . . . and enduring good looks. Write us to find out more about nickel stainless steel—the modern material for modern transit systems.



The International Nickel Company, Inc.
67 Wall Street, New York, N. Y. 10005

Circle 3 on reader service card

COIL AT HEADEND IDENTIFIES TRAIN when it passes wayside receiving unit. Train identification information is sent to equipment for proper alignment of routes through interlockings and to light train destination signs on station platforms.

Toronto opens new 8-mile subway line

Three train routings will provide improved service to downtown and crosstown areas. Additional extensions are coming.

NEW 8-MILE BLOOR-DANFORTH crosstown line connects with the Yonge-University line at University wye. System mileage will be increased to 24.67 when 10 miles (dash lines) now under construction are completed by 1970.

Torontonians get twice as much riding these days for their subway fare. Opening of the new 8-mile Bloor-Danforth line Feb. 26 more than doubled the subway route mileage. Two 3-mile extensions (now under construction) at each end of the Bloor-Danforth line are expected to be in service by the end of 1967. A 4-mile extension on the north end of the 6.6-mile Yonge street line from Eglinton to Sheppard avenue has been approved. Construction is to begin in 1968. Upon its completion in 1970, Toronto Transit Commission will have 24.67 route miles of subway in service.

To provide improved service to the downtown and crosstown areas as a result of opening the new east-west line at Bloor street, TTC will run trains over three routes: (1) from Eglinton on Yonge-University-Bloor to Keele; (2) from Eglinton on Yonge-University-Danforth to Woodbine; and (3) crosstown service on Bloor-Danforth between Keele and Woodbine. Trains operate from 6 a.m. to 2 a.m. with a daily rush hour headway of 2¼ minutes. Normal daily headway is 3¼ minutes. On Saturdays, the headway is 3½ minutes and on Sundays, the headway is lengthened to 4½ minutes. During four early morning hours (2 a.m. to 6 a.m.), bus service parallels the subway routes.

● **Train identification.** One of the control mechanisms available to keep trains of the three routes operating smoothly is a General Railway Signal train identity system, which provides information for route alignment and display of train arrival information at station platforms.

The train-carried identity apparatus consists of an inert tuned coil and tuning unit mounted in a quick-detachable assembly which in turn is mounted in a bracket on the headend of the train. The tuning unit includes a selector switch that enables the unit to be tuned to any one of nine channels.

Wayside equipment consists of two coils which are spiral wound and epoxy-encapsulated in a rectangular configuration. This coil assembly is mounted along the wayside so that the flat side is in a vertical plane parallel with the rails. Associated control equipment includes filters, relays and an amplifier.

Wayside coils are phased and coupled so as to produce a null frequency (zero oscillation). The amplifier input is connected to one coil; its output to the other coil. The output is also connected in parallel to nine filter units. Each filter unit responds to only one fre-

R. G. LEWIS

AS THE PUBLISHER SEES IT...

OUR READERS CAN'T WAIT—We often get the question from industry newcomers: "What is the function of an industry paper such as Railway Age?" There are, of course, answers visible in every week's issue. News, comments, features and data of importance to railroaders often appear exclusively in Railway Age. Other material appears first in our paper, often weeks and months ahead of its appearance elsewhere. But we don't often scoop other journals by three years. A couple of weeks ago Life carried a story about the use of nitrogen atmosphere for the prevention of decay in shipments of perishables. The week before, Business Week carried a story about the artificial atmosphere. Railway Age published a story on the research in modified atmospheres back in 1963 (March 23, p. 81) and a follow-up story in 1964 (March 30, p. 56). The story is updated in this week's issue (p. 28).

We're glad that the general media carried this information to the public and the business community, as the technique has begun to gain commercial acceptance. But Railway Age's readers are directly involved in the handling of billions of dollars worth of perishables every year, and we couldn't let them wait to know about this promising development in that area.

BEECHING PLAN, CZECH STYLE—Trends are the same on the C&NW, British Railways, or Czechoslovakian State Railways, apparently. I note from the January issue of our overseas publication, International Railway Journal, that the Czechs plan "a drastic rationalization of the freight handling system, under which all but 370 stations will be closed to freight," and that "all the 370 will be highly mechanized." Whether railroads are privately owned, owned publicly under a democratic government, or by outright socialistic government, the move away from the retail type business is inevitable. With no rate-making regulations to worry about, the Czech system is able to use its tariffs to accelerate "rationalization"—short haul traffic is to be all but eliminated by establishment of "prohibitive tariffs."

BEER BY RAIL—Adolph Coors Co., Golden, Colo., has bought its second locomotive. "We're one of the few U.S. breweries that operates its own railroad marshalling yard," said a company officer, "and our rail volume is big enough that we needed two switch engines." Thus he explained purchase of an 80-tonner from the Jacksonville, Fla., Defense Surplus Sales office, advertised by DSSO as "a $62,150 model." It was a twin of a diesel already serving the Coors plant. And speaking of beer by rail, I am reminded that we carried a feature on the Miller Brewing Co. (RA, Apr. 30, 1962, p. 20) through which I learned that the big brewery ships predominantly by rail. Miller beer is brewed exclusively at Milwaukee, which makes for lots of long hauls. Their specially-equipped refrigerated box cars (they lease 400 of them from General American for their base requirements) are painted to resemble the Miller label and make fine rolling advertisements for their rail-shipped beer.

EDITORIAL DIET—Our editorial department has just completed its annual breakdown of 1965 coverage by subject matter. It is an internal discipline for controlling the editorial mix—to keep a good balance of coverage by subject and by department. There were 1,340 editorial pages in all last year. Big increases took place in coverage of labor, mergers, transit, electronic data processing and computerization—signs of the times in the industry. A few extra copies of the compilation are available, if any readers are interested, and competitive comparisons have been prepared, too. If the breakdown interests enough readers, we could even make it part of our regular semi-annual editorial index, which is available to all subscribers on request.

quency, that is, the frequency to which the train-carried coil is tuned. When the train-carried coil is within range of the wayside coils (about 12 inches), inductive coupling occurs, and the amplifier oscillates at the frequency to which the train-carried coil is tuned.

Thus, each train is identified as it approaches interlockings. This identifying information is transmitted to the switch and signal control apparatus to align the proper route for the train through the plant.

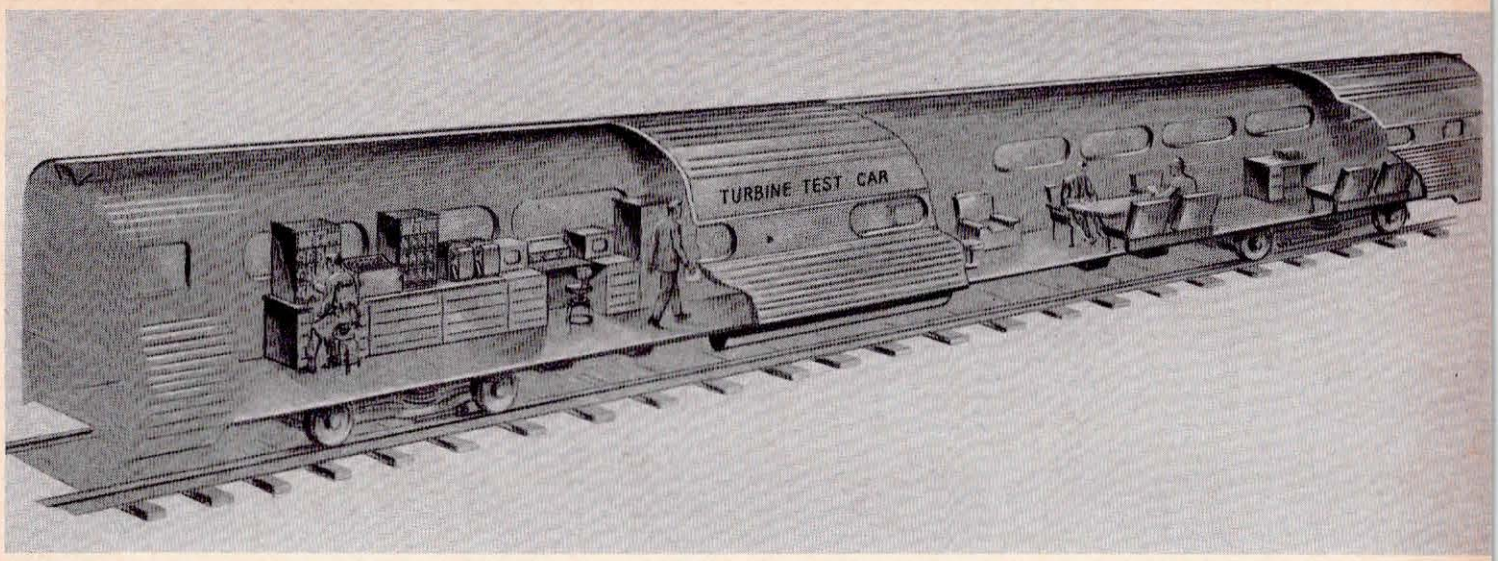
● **Destination signs.** At all stations, train destination signs are located on passenger station platforms and also in control areas at the terminal stations. The purpose of these signs is to inform the public of the destination of the next subway train before it enters the station, thus facilitating loading and also minimizing confusion on the platforms and on the trains.

The signs are operated automatically by control equipment that receives train identification information as the train approaches the station. The signs display continuously the destination of the oncoming train, starting about 10 seconds before its arrival at the station. The destination display is cancelled when the train leaves the station.

To assure that trains leave their terminals promptly and hold to schedules, the automatic dispatching system has been expanded to include Bloor-Danforth terminals. Also, schedules have been revised to handle the three types of trains now operating. Departure of trains at Eglinton, Keele and Woodbine is controlled by the automatic dispatching controls that use a schedule on a clock-driven perforated 35 mm film. Similar types of automatic train dispatchers also control the signals at the convergent points of the University wye. Thus, there is a check on train performance about halfway through each train's run.

● **Trip stops and wayside signals.** The signal system on the Bloor-Danforth line has 3-aspect wayside color-light signals. Automatic train stops at each signal location enforce obedience to a red or stop signal. Interlockings on the new line including the entrance to Greenwood yard and the University wye may be controlled from an N-X machine at St. George station at University wye. Under normal operations, routes are aligned automatically at interlockings without the need for manual operation of the N-X machine. This control machine is operated when trains are brought from or sent to Greenwood yard.

GRS supplied all signal equipment, including the train identity system for the Bloor-Danforth and University lines. ■



POTENTIAL for low-maintenance, vibration-free turbines is seen good; performance may equal that of full electrification.

What can turbines do for commuters?

Long Island demonstration will appraise reliability, performance and economy of prime mover in heavy-duty passenger service.

The jet engine, in the slipstream of its complete revolution of air passenger transportation, will soon have opportunities to demonstrate what it might do for movement of passengers by rail. And some revolutionary things are being predicted for the gas turbine—heart of all jet engines—when it begins its tests as a passenger-train prime mover later this year.

● **Two separate tests.** Two government-financed demonstrations are to put the rail-borne gas turbines through their paces. A lightweight "Turboliner," built by Budd and powered with Garrett gas turbines, is scheduled to be under test by July on the Long Island (RA, Feb. 28, p. 12). Near the end of 1966 a pair of articulated three-car Pullman-Standard-built trains driven by United Aircraft gas turbines are to be ready for testing on the New Haven (see p. 26). In every case, rather than producing the high energy exhaust that they do in jet planes, the gas turbines will be coupled to speed reducers and conventional axle drives.

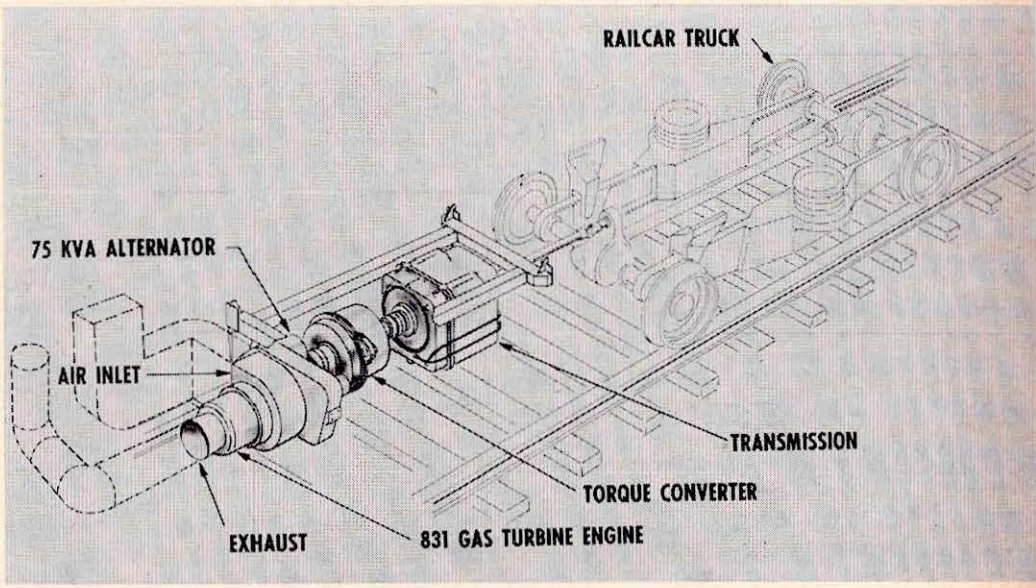
P. W. Scott, Budd president, predicts that the test on the Long Island could have significant effects on plans for new passenger equipment for all commuter railroads. H. H. Wetzel, Garrett president, notes that, "Since weight will be a very important factor in the efficient operation of the test car, aerospace technology—which puts a premium on size, weight and reliability—has been used to develop these small gas turbines."

● **Non-revenue test.** Testing, which will take approximately eight months, will be conducted on a 20-mile line between Bethpage and Ronkonkoma, N.Y. No passengers will be handled by the "Turboliner," although all regular service will be maintained on the line during the test period.

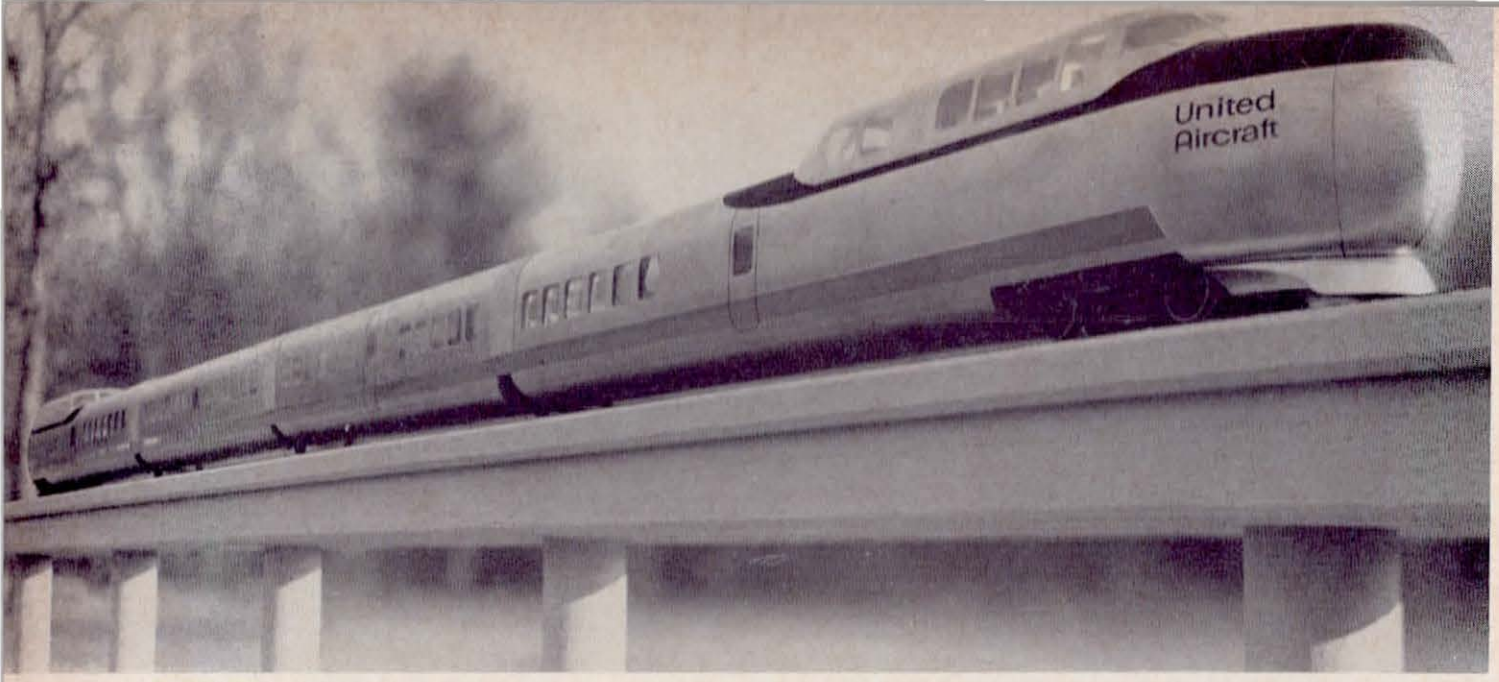
The test vehicle is an 85-foot, stainless-steel Budd car fitted with two 535-hp Garrett turbines. Each turbine will be mounted under the car floor and geared directly to both axles of the adjacent truck. A lightweight air-conditioning unit, like that Garrett supplies for jet airliners, will be installed for testing.

Most of the car's interior will be fitted with instrumentation for appraisal of performance.

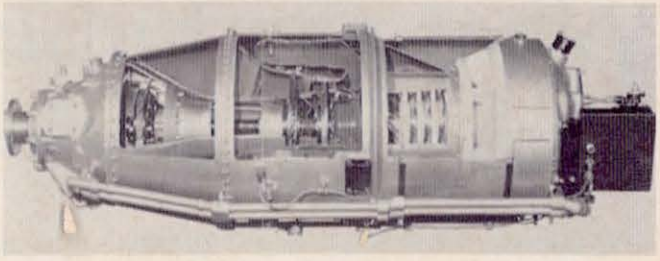
The $1.4-million demonstration is being financed by the U.S. Department of Housing and Urban Development and by the State of New York. ■



ULTIMATE GOAL of LI is incorporating traction motors in drive so cars could have equivalent performance in third-rail and non-electrical territories.



ARTICULATED TRAIN, (above), powered by groups of compact 500-hp gas turbines (below), is UAC's proposal for high-speed passenger service. Union Pacific operates gas-turbine freight locomotives with individual turbine rating of 10,000 hp.



Turbines for intercity trains

United Aircraft is leasing two trains for 'Corridor' tests on the New Haven; Canadian government is said to be weighing the purchase of six trains for high-speed Montreal-Toronto service.

Late this year, when about half the testing of a turbine-powered commuter car is to have been completed on the Long Island (p. 25), United Aircraft's two intercity turbine trains are to be delivered for testing on the New Haven. Each TMT (turbine motor train) is to consist of a pair of cab-equipped power dome cars and an unpowered intermediate unit.

The U.S. Department of Commerce has placed the $2.1-million order with United Aircraft for these trains as part of its Corridor research program. Testing ground will be the 44-mile stretch of New Haven main line between Boston and Providence, R.I. The trains are being built by Pullman-Standard with designs and prime movers supplied by UAC.

● **Power dome car.** Gas turbines for the trains, all mounted beneath the elevated lounges of the power dome cars, are United Aircraft Model ST-6B, each capable of a 550-horsepower output and weighing 250 pounds. Turbines are cited by UAC engineers as vital in producing the high performance level needed to attract passengers and achieve the utilization which can make passenger service profitable.

In a paper prepared for delivery at last week's University of Chicago transportation conference, sponsored by the Brotherhood of Railroad Trainmen, UAC engineers described the designs and explained the advantages of the TMT trains. Summarized, these include:

—Attraction of passengers through improved schedules, comfort and amenities;

—Reduction of operating costs by the elimination of dead weight, reduction in train resistance, improved preventive maintenance, and elimination of turning and switching;

—Elimination of need for electrification by using compact, light-weight gas turbines;

—Reduction in equipment ownership by increased utilization.

"The first requirement for such trains," says a UAC spokesman, "is that they must attract and satisfy a large segment of the traveling public. People want fast, convenient schedules. They want creature comfort and convenience. They want to be treated as guests with the touches of luxury and good taste which cost so little but mean so much. Passengers' desires for comfort, convenience and luxury are currently being met by the airlines. UAC train interiors will resemble those of jet airliners."

● **Systems approach.** While higher speeds and acceleration can be achieved with conventional equipment only by adding horsepower, explain UAC engineers, the TMT concept is a systems approach which involves, instead, reducing train resistance. Elimination of the separate locomotive and cutting the weight is achieved with aluminum structures, single-axle suspensions (except at train ends) and choice of special subassemblies.

UAC turbine trains will get their first trials between Boston and Providence. They may see their initial long distance service in Canada, however. The Canadian government is now studying a $15-million proposal for purchase of six UAC trains for Canadian National's Montreal-Toronto mainline. CN, which has had the proposal for a year, was reluctant to commit itself until the TMT had been tested. If the Canadian government purchases the equipment, it would be placed in service in time for opening of Expo 67, the Montreal world's fair, which starts in April 1967. A 3½-hour schedule is rated practical by UAC engineers. ■

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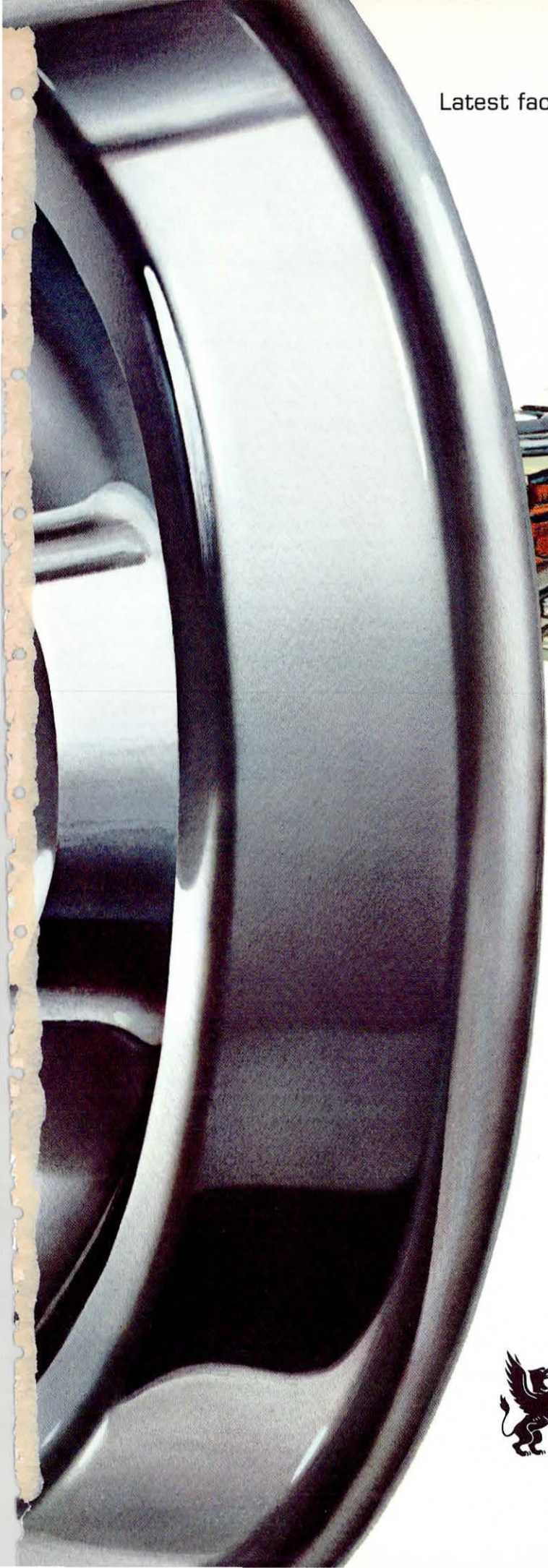
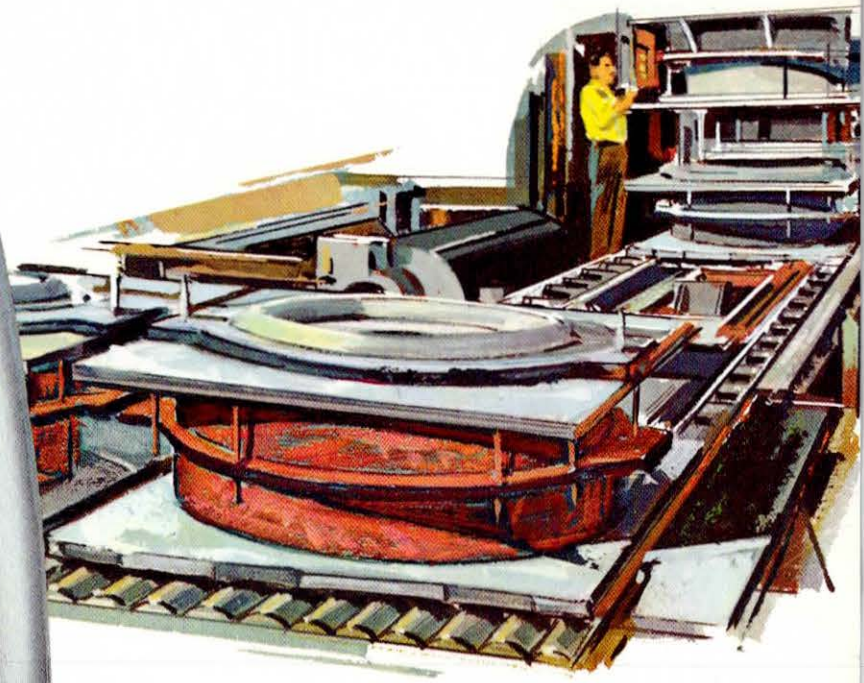
Latest facts about the strongest wheel on rails:





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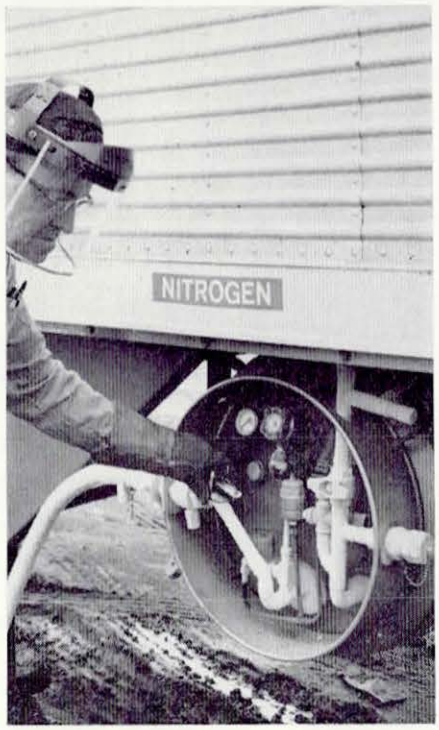
ONE OF THE Amsted INDUSTRIES

Nitrogen preserves perishable freight

Oxytrol system is now available for mechanical reefers, trailers.

A controlled atmosphere process that has significantly reduced perishable spoilage in refrigerated piggyback trailers is now being made available to railroads and freight forwarders. The process, called Oxytrol, involves displacing practically all oxygen from a trailer or refrigerator car and replacing it with pure nitrogen gas.

By controlling oxygen levels within very close tolerances during transit, perishables can be shipped under mechanical refrigeration for extended periods with virtually no deterioration. The Oxytrol system has been under development for more than four years by Best Express Division of Best Fertilizers Co., a subsidiary of the Occidental Petroleum Corp. Best Express now has a fleet of more than 100 trailers in regular service which have been its proving ground for Oxytrol.



NITROGEN TANK mounts under trailer, control unit on nose. Oxytrol lets fresh foods move at higher temperature and humidity, cutting refrigeration load.

● **Satisfactory service.** Effectiveness of the system is indicated by Best's recently announced plan to expand its own piggyback trailer fleet. The process also is now being offered to common carriers by leasing all necessary equipment for their trailers, containers and railroad cars.

For several years scientists and food technicians have known that foods refrigerated and shipped in a 99% nitrogen atmosphere would neither deteriorate nor ripen prematurely. The U.S. Department of Agriculture has even established advisory levels of nitrogen atmosphere for optimum storage.

Best finally perfected its system for maintaining precisely the atmosphere of lading spaces of refrigerated trailers and railroad cars. Within the past few weeks it has achieved what is believed to be a strong patent position on the equipment.

● **Extensive testing.** For more than a year during the patent pending period, Best Express was test shipping produce piggyback from California to points as distant as Boston, an operation which was not only successful but profitable. During 1965 Best trailers moved substantial tonnages of strawberries, melons, lettuce and tomatoes.

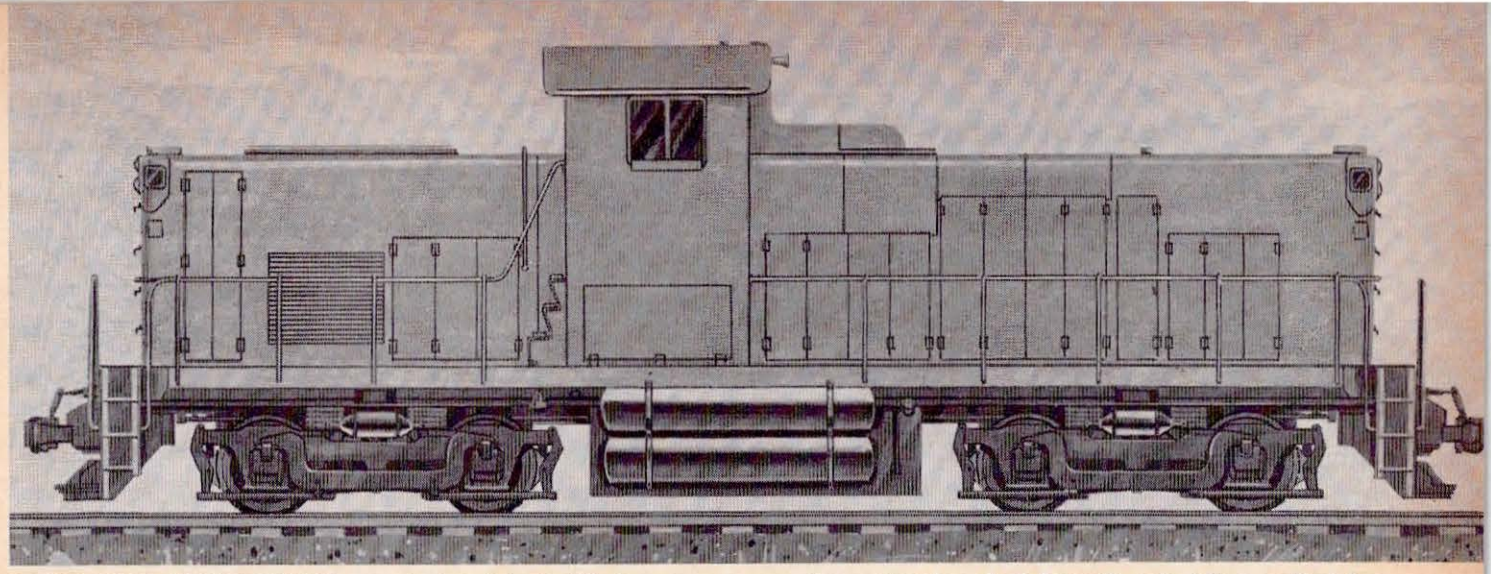
Most shipments originated in California's Imperial and Salinas Valleys. Lettuce shipped in Oxytrol trailers usually brought 50 cents more per box, and asparagus up to $2,000 more per load, than produce moved under conventional refrigeration. Strawberries shipped by piggyback trailer for $1,400 arrived at a distant market in better condition than strawberries shipped by air at a freight cost of $2,200 for an equivalent quantity.

Oxytrol on the transportation vehicle makes unnecessary the precooling of produce prior to shipment—a process which costs about $145 per trailer-load for lettuce. Within ten minutes after the trailer is closed, the proper nitrogen atmosphere is established so that natural respiration and oxidation of perishables are effectively halted.

● **Accurate sensors.** In transit, the nitrogen level is regulated by extremely sensitive oxygen sensors which automatically control release of additional gas as needed. Nitrogen is supplied from a 100-gallon tank carried by each trailer. Temperatures are maintained by standard mechanical refrigeration equipment.

In addition to its use with fruits and vegetables Oxytrol has been used successfully for transportation of meat, fish and cut flowers. In the case of meats, shrinkage is eliminated and surface appearance preserved.

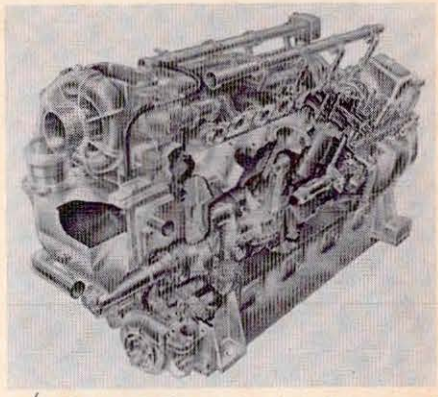
Oxytrol, says D. A. Dixon, division manager for Best, should prove of special value to railroads. "After all," he explains, "it makes possible the movement by less speedy, less expensive methods those products which have been moving increasingly by air." ■



STEEPLE-CAB ARRANGEMENT was designed to facilitate one-man operation; extension shaft beneath cab drives cooling fan.

Market survey leads to Alco utility unit

Medium-horsepower locomotive has been developed specifically for branch lines, transfer services and switching assignments.



EIGHT-CYLINDER engine has features of other 251 models; pistons are same ones used in 16-cylinder, 3,000-hp 251E.

At a time when most locomotive development seems to emphasize high horsepower for fast-freight service, Alco has just announced a new 1,500-hp utility locomotive for branch lines, switching and transfer work.

An indication of the need for a medium-horsepower unit in today's railroading is the Rock Island order, already on Alco's books, for five of these new Century 415 locomotives.

● **How a survey helped.** The Century 415, ninth model in the Century series, is powered by a new V-8 version of the Alco Model 251 diesel engine. C. C. Davis, president of Alco's locomotive and engine products division, notes that the locomotive incorporates features suggested by railroad personnel during a market survey which Alco conducted. The Rock Island units are not scheduled for delivery until June. It is expected, however, that a demonstrator for in-service testing by railroads will be ready by April.

The Century 415, Davis explains, has been designed to facilitate one-man, two-way operation. It is distinguished by its raised center cab with an Alco-developed dual-control console. The console permits instantaneous operation from either side of the cab.

Alco engineers say the Century 415 is aimed at filling "a definite and growing need for a locomotive capable of efficient, economical operation in a variety of applications." One Alco spokesman points out that today's utility locomotive is fully as powerful as the main-line units of only a few years back.

● **The new engine.** Key to the high rating of the compact locomotive is its new V-8 engine, rated at 1,500 horsepower for traction at 1,000-rpm engine speed. While it is the smallest Vee-type engine which Alco produces, it is similar in design to the 6-, 12- and 16-cylinder Model 251 diesels which have been in service for more than ten years in various locomotive, marine and stationary applications. The smaller 6-cylinder engine has been, and will continue to be, of an in-line configuration.

The V-8 engine has the 9-inch bore and 10½-inch stroke of other 251s and is supercharged. Most engine components—such as rings, bearings, connecting rods, cylinder heads, cylinder liners, fuel injection equipment and valve operating mechanism — are interchangeable among all versions of the 251. This high degree of interchangeability, say Alco service men, simplifies maintenance procedures and the stocking of replacement parts.

The 8-cylinder engine has a large water-cooled aftercooler and a new Model 131 turbosupercharger to increase engine aspiration.

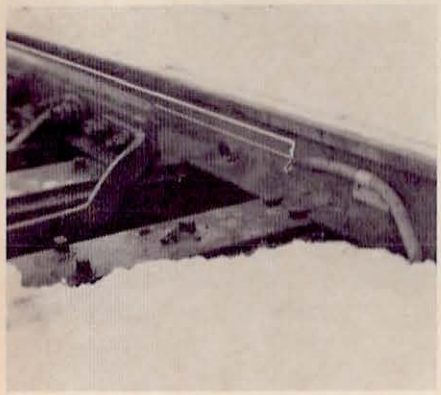
● **D-c generator.** The diesel engine on the Century 415 is directly coupled to a separately excited, direct-current main generator. Generator output is fed directly to four E-type traction motors. Engine and generator are housed in the power plant hood at one end of the locomotive, separated by the center cab from the radiator hood which contains not only the cooling system but also the air compressor and propulsion control cabinet.

Fully loaded weight for the standard locomotive is 240,000 pounds. The unit may be ballasted to 260,000 pounds. While the equalized AAR-type truck is standard, the Century 415 may optionally be fitted with fully equalized, swing bolster trucks having roller bearings so it may be used in high-speed service.

Maximum speed with the 74:18 gear ratio and 40-inch wheels is 66 mph. Optional gearing is available for top speeds up to 83 mph.

● **Trade-in potential.** "An important feature of the 415," says Davis, "is that its design and component structures will allow Alco to offer favorable trade-in arrangements, not only on older Alco locomotives, but on other makes as well." Components which may be reused from older units include trucks, motors and generators. ■

NEW **PRODUCTS** REPORT

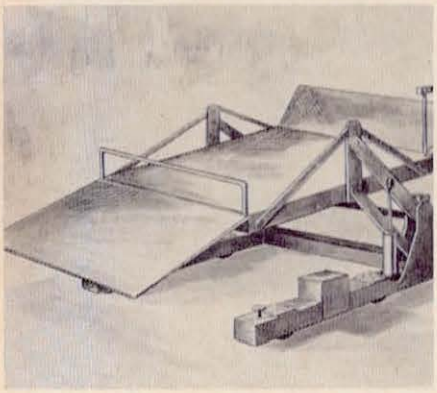


Switch Heater (RA-1)

The new Econoheat switch heater reduces operating costs from 35% to 45%. More efficient heat distribution is realized with increased thermal conductivity and increased contact area. The heating element has a low wattage density which reduces operating costs.

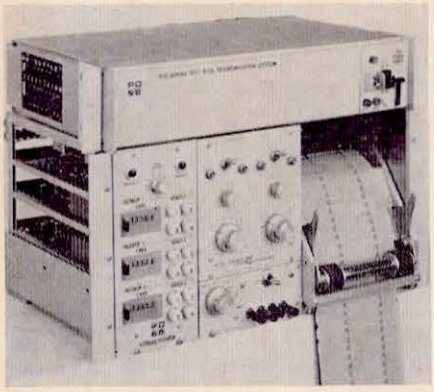
The heating element is fastened to the inside web of the stock rail with a high strength adhesive. No clips are required. The heating element is furnished in strips 8 ft long, 1½ inches wide, 1/16 inch thick, sandwiched between two pieces of fiber glass cloth encapsulated in silicone rubber through a heating process, forming a rugged heating strip with very high electrical resistance to the rail.

Kits are available from stock in three sizes: SW-16 with four 220 volt, 1400 watt strips (two for each rail) for the 16 ft switch point; SW-26 with four 150 volt, 1400 watt strips for the 26 ft switch point; and the SW-39 110 volt, 1400 watt strips for a 39 ft switch point. *Cleveland Technical Center.*



Loading Dock (RA-2)

The platform of the Techno Elevating Dock for lifting and lowering loaded fork trucks, pallet and skid trucks, and platform trucks between truck height and ground level is said to stay level regardless of where load is concentrated. The dock may be had with or without casters with adjustable ground support pads. Lowering speed, achieved by fitting each cylinder with an individual flow-control valve, is constant whether platform is empty or fully loaded. The leading edge of the carbon-steel ramp plate is ⅛ in. thick. A folding safety barrier, for easy transfer between pavement and lifting platform, prevents over-running platform. It folds out of the way when ground level is reached. The dockboard folds up when platform is lowered. The "A" Series elevating dock has a 50- x 85-in. platform, with capacities from 2,000 to 5,000 lb. The platform of the "B" Series is 60 x 132 in., and capacities range from 6,000 to 16,000 lb. *Techno Truck Mfg. Co.*



Hotbox Telemeter (RA-3)

A new field-proven hotbox telemetering system features: car and wheel counters, compact solid-state packaging, all silicon components, and FM telemetering for reliable, drift-free operation over a wide temperature range (−45° to +65°C).

One to three counters permit quick, accurate identification of the exact cars and wheels in trouble, and serve as a back-up to the recorder.

FM multiplexing techniques provide accurate transmission (meet CCITT specifications) of high resolution data over any communication link to the monitoring location.

Also available are loss of signal and hotbox audible alarms.

The system also features modular expandability, and can interface with any detector or recorder.

Power requirements are 24 and 48 volts DC and 115 volts AC. *Pacific Communications & Electronics, Inc.*

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CN

PEOPLE

ALASKA STEAMSHIP CO.—Has announced three appointments to newly created positions. **R. C. Rose,** assistant general manager, named vice president—traffic and sales. **T. A. Rathje** of Alaska Trainship Corp., appointed vice president—marine terminals and operations; **J. F. O'Sullivan,** manager, Bering Sea Division, named manager of Alaska Agencies.

J. J. Dillon, general traffic manager, Alaska Trainship, appointed vice president—sales of Alaska Steamship.

ALTON & SOUTHERN.—**L. W. Hergenroeder,** assistant treasurer and assistant controller, East St. Louis, Ill., has been elected treasurer and controller. **R. E. Tharp,** special accountant, appointed manager of accounting. **E. B. Hardwig,** acting manager of operations, appointed manager of operations.

BALTIMORE & OHIO.—**James T. Barthol,** assistant to freight traffic manager, Baltimore, appointed general freight agent—system rate and divisions bureau, marketing department.

BELT RAILWAY OF CHICAGO.—**W. F. Hartig,** storekeeper, appointed purchasing agent-storekeepers. **L. S. Riha,** purchasing and supply agent, retired Jan. 31 after more than 52 years' service.

BURLINGTON.—**Arthur E. Pew III,** assistant director of computer systems and planning, named director, data processing, Chicago.

CANADIAN NATIONAL.—**Ernest J. Cooke,** general manager, Atlantic Region, Moncton, N.B., appointed vice president of that region, effective April 1, succeeding **Howard C. Grayston,** retiring after more than 50 years of railroading. **Colin T. Cameron,** manager, Lakehead area, Port Arthur, Ont., succeeds Mr. Cooke.

Ralph T. Vaughan, secretary of the company, Montreal, appointed vice president and secretary.

Ernest K. House, manager, Newfoundland Area, St. John's, appointed assistant vice president—labor relations, succeeding **T. A. Johnstone,** retired.

A. Olynyk, general superintendent of express freight, Montreal, appointed manager, Champlain Area.

T. E. Dolphin, special projects engineer, has been assigned the responsibility of coordinating matters relating to redevelopment of railway property in the Toronto area.

G. F. Hennessy, branch manager, freight sales, Sudbury, Ont., appointed sales development officer, Great Lakes Region, Toronto, succeeding **G. L. Robinson,** promoted.

(Continued on page 35)

B.A.R.T. plans super comfort-convenience to convert Californians to rail transit

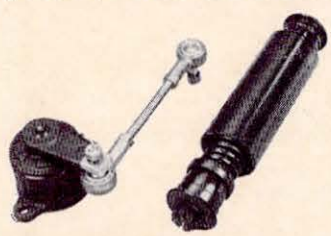
Full-scale model of final BART car for evaluation of car body and seating design.

Laboratory car for comparative check of operational and control systems.

HOUDAILLE ride controls serve on test cars

Getting the auto-happy Californian out of his driver's seat is the primary aim of the billion-dollar San Francisco Bay Area Rapid Transit District development project now being constructed to serve BART's planned three-county, 75 mile system. To lure thousands of daily commuters from the area's congested highways, BART intends to provide the most comfortable, fastest, safest and most economical means of interurban transportation the world has ever known. BART laboratory cars are now in operation to test and develop advanced equipment and techniques prior to selection of final design. Manufacturers of four out of five trucks chosen for test car evaluation included Houdaille ride-control devices in their test units, demonstrating Houdaille's leadership in solving railroad vibration damping problems. Houdaille Rotary Hydraulic Shock Absorbers and Friction Snubbers meet all the requirements of vertical and lateral car motion control for maximum passenger comfort.

Rotary Shock Absorbers are externally adjustable for "fine tuning" of ride control performance. Their rugged construction and completely sealed design means they far outlast ordinary shock absorbers . . . require minimum service. Automatic temperature compensation facilitates all-weather operation, and installation is simplified by the many possible variables in mounting and linkage arrangements.



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The charts include a cutaway diagram of the car and a listing of important parts with arrows showing where the part is located. These charts are a part of standard training programs used on a number of major railroads.

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- ☐ Air conditioned chair car, 1930 design (18x35 inches)
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RA-3/7

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MARKET OUTLOOK

Carloadings

Loadings of revenue freight in the week ended Feb. 26 totaled 535,979 cars, the Association of American Railroads announced on Mar. 3. This was a decrease of 1,723 cars, or 0.3%, compared with the previous week; an increase of 31,290 cars, or 6.2%, compared with the corresponding week last year; and an increase of 17,571 cars, or 3.4%, compared with the equivalent 1964 week. Ton-miles generated by carloadings in the week ended Feb. 26 are estimated at 13.5 billion, an increase of 12.7% above the corresponding week of 1965, and 10.2% above the 1964 week.

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, Feb. 26

District	1966	1965	1964
Eastern, including Allegheny and Pocahontas ..	222,517	211,932	207,228
Southern	109,981	104,378	105,774
Total Eastern and Southern Districts	332,498	316,310	313,002
Northwestern .	59,124	55,274	59,234
Central Western	106,297	99,272	109,238
Southwestern .	38,060	33,833	36,934
Total Western Districts	203,481	188,379	205,406
Total All Roads	535,979	504,689	518,408
Commodities:			
Grain and grain products	55,417	42,376	51,097
Livestock	1,385	1,846	1,946
Coal	110,062	100,046	99,631
Coke	8,644	8,377	7,165
Forest Products	38,580	36,685	38,771
Ore	18,454	18,219	15,045
Merchandise l.c.l.	5,954	9,091	13,884
Miscellaneous .	297,483	288,049	290,869
Feb. 26	535,979	504,689	518,408
Feb. 19	537,702	529,594	502,601
Feb. 12	534,350	512,582	516,132
Feb. 5	487,617	501,186	516,438
Jan. 29	513,503	527,826	532,686
Cumulative total, 8 weeks	4,198,452	4,162,048	4,145,994
Estimated revenue ton-miles (billions) 8 weeks	105.8	98.8	98.7

PIGGYBACK CARLOADINGS—U.S. piggyback loadings for the week ended Feb. 19 totaled 21,671 cars, carrying 35,464 trailers, compared with 19,583 cars, carrying 31,961 trailers, in the corresponding 1965 week. Loadings for 1966 up to Feb. 19 totaled 139,791 cars, carrying 229,240 trailers, compared with 125,728 cars, carrying 204,913 trailers, in the corresponding period of 1965.

IN CANADA—Carloadings for the seven-day period ended Feb. 14 totaled 76,261 cars, compared with 74,549 for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
Feb. 14, 1966	76,261	27,833
Feb. 14, 1965	68,678	24,237
Cumulative Totals		
Feb. 14, 1966	445,212	155,432
Feb. 14, 1965	417,243	145,671

FREIGHT-TRAIN CARS

► *Atlantic Coast Line.*—Ordered 1,600 new freight cars from Pullman-Standard. Included are 1,000 100-ton covered hopper cars, to be built at Butler, Pa.; and 600 50-ton, 40½-ft box cars, to be built at Bessemer, Ala. Deliveries will begin in August. ACL also ordered 100 40-ft, heavy duty platform type trailers from Miller Trailers, Bradenton, Fla., for delivery beginning in April. Total cost of the new equipment will be more than $22 million.

► *Santa Fe.*—Ordered 2,500 100-ton, 4,427-cu-ft-capacity trough-hatch covered hopper cars from Pullman-Standard at a cost of more than $38 million. Deliveries are scheduled to begin in September, at a rate of 42 cars per day.

ORDERS AND DELIVERIES

► *Backlog rises.*—Orders for new freight cars in January totaled 8,655, compared with 10,369 in December and 9,436 in January 1965. Deliveries of new freight cars totaled 7,725 in January, compared with 8,893 in December and 6,130 in January 1965. Backlog of cars on order and undelivered as of Feb. 1 showed 12,360 on order in railroad shops and 33,394 in the shops of contract car builders, for a total of 45,754. This compared with a backlog of 45,016 on order Jan. 1 and 36,355 on order Feb. 1, 1965. As of Feb. 1, 11,057 cars were scheduled for rebuilding, compared with 12,233 on Jan. 1 and 5,428 on Feb. 1, 1965.

PASSENGER CARS

► *Pennsylvania.*—Has budgeted $7.2 million for major repairs to 148 passenger coaches; overhauling the air conditioning, heating and running gear of 72 coaches, parlor and dining cars; and rehabilitating 30 electric commuter cars, five RPO cars and 82 mail and express cars.

NEW FACILITIES

► *Alaska.*—Tie-renewal program will involve authorized expenditure of $540,000. ARR also plans construction of a second car-barge slip at Whittier at a cost of approximately $1 million.

► *Cleveland Transit System.*—Is seeking bids for the supply and installation of an automatic train control system for its four-mile Airport Rapid Transit Extension. Cost is estimated at $740,000.

► *Illinois Central.*—Ordered three Wheel Thermo-Scanner units from General Railway Signal for installation on yard approaches near Vicksburg, Miss.

FOREIGN

► *Yugoslavia.*—Will acquire 33 additional G-16 locomotives from General Motors Overseas. Delivery is scheduled for this year's third quarter. Yugoslavia already has 98 similar GM units in service.

YOU OUGHT TO KNOW

Hotboxes at all-time low: Freight-car journal performance was at a new peak in November 1965 when the AAR-compiled average for all railroads reached 1,554,316 car-miles per hotbox set-off. Best previous performance had been the 1,494,303 miles in May 1965. Top individual railroad record for November was Reading's 4,420,621 miles per set-off.

400 homes-in-the-rough: What's described as the "largest single transcontinental rail movement of lumber to the Twin Cities in the history of the Pacific Northwest's forest-products industry" was originated recently by Great Northern. Enough kiln-dried lumber to build almost 400 medium-size houses was shipped in two special trains, totaling 140 cars, from Everett and Spokane, Wash., to Minot, N.D., and consolidated there for movement to Minneapolis-St. Paul. All lumber was wrapped in weather-protection paper and moved on flat cars. Twenty-two forest-products companies in four western states and British Columbia produced the lumber that went into the 6,000-ton shipment.

Up is the word for UP: In January, Union Pacific had the highest gross revenues and net income ever recorded for that month. UP's net on the ICC basis in January was $6,986,916, up $2,102,187 over the corresponding month last year. After adjustment for deferred federal income taxes, net income was $5,486,916, or $1,802,187 greater than for January 1965. UP said a $2.3-million rise in revenues was due chiefly to increased shipments of wheat, potatoes, lumber and other forest products, as well as a general increase in the volume of other traffic. In last year's comparable period, traffic was adversely affected by storms and floods.

GN, SUNA agree: Great Northern and the Switchmen's Union of North America have settled a dispute which led to a strike call and brief picketing of the railroad last month. The controversy involved application of job-protection procedures affecting GN switchmen. Details of the settlement were not reported.

Now it's Railweight, Inc.: Shareholders of International Railroads' Weighing Corp. have approved a name-change for their company—to Railweight, Inc., which has been the trade name of the firm's electronic freight-car weighing system.

How Reading did it: Reading posted a profit of $2,904,044 in 1965—first net income reported by the railroad since 1960, and the best since 1958. In 1964, Reading had a deficit of $5,395,862. In a letter to shareholders, President Charles Bertrand tells how the turnabout was accomplished. Operating revenues were up by $8,057,545, and operating expenses were down by $200,804—"the lowest since 1946." Bertrand went on to say: "At the same time, we absorbed $2.3 million in increased employment costs, handled more cars in yards and in trains, repaired 20 more locomotives and 696 more freight cars, laid 2,135 more tons of new rail, installed 40,539 more new crossties, and raised 110 more miles of track [than in 1964]. Thus all of the increased revenue found its way to net income at a time when stepped-up maintenance programs were being carried out."

Another computer for SNCF: The Sperry Rand Corp. will announce this week delivery of a second UNIVAC 1108 to French National Railways (SNCF). The two computers are part of Europe's largest railway computer center (at the Auteuil station in Paris). In addition to handling accounting chores, they'll help maintain control of the more than 350,000 locomotives, passenger cars and freight cars of the railroad. The computers will also help schedule equipment maintenance.

Truck tonnage: Intercity truck tonnage in the week ended Feb. 19 was 0.4% below that of the previous week, and 4.4% ahead of volume in the corresponding week of 1965, according to American Trucking Associations.

Current statistics

Net Income	
12 mos., 1965	$815,000,000
12 mos., 1964	694,000,000
Carloadings, revenue freight	
8 wks., 1966	4,198,452
8 wks., 1965	4,162,048
Freight cars on order	
Feb. 1, 1966	45,754
Feb. 1, 1965	36,355
Freight cars delivered	
1 mo., 1966	7,725
1 mo., 1965	6,130
Serviceable cars	
Feb. 1, 1966	1,400,413
Feb. 1, 1965	1,396,720

Ernest K. House
CN

W. J. Booth
C&O-B&O

H. J. Bowyer
Rock Island

Donald L. Loftus
WP

(Continued from page 31)

CHESAPEAKE & OHIO—BALTIMORE & OHIO.—James P. Charters named assistant to general manager, Chicago Terminals. Mr. Charters, previously terminal superintendent, C&O, at Chicago, will assist in effecting coordination of B&O, C&O and B&O Chicago Terminal facilities and operations in Chicago.

Other joint C&O-B&O appointments for Chicago Terminals include: **W. J. Booth,** superintendent (former assistant superintendent, B&OCT); **C. J. Rosenbach,** assistant superintendent (former trainmaster, B&OCT); **K. R. Hanegan, P. J. O'Connell** and **K. L. Eldridge,** trainmasters; and **T. E. Chester,** terminal trainmaster.

ILLINOIS CENTRAL.—George M. Crowson, assistant to the president, retired Feb. 28. (RA, Feb. 28, p. 8).

LOUISVILLE & NASHVILLE.—John J. Houlihan, freight and passenger agent, New York, appointed general agent-passenger department, Chicago, to replace **Thomas M. Strane,** who retired Feb. 28 after more than 48 years' service.

MISSOURI PACIFIC-TEXAS & PACIFIC.—G. L. Corley named assistant traffic manager-truck rail rates and sales, Texas District, Dallas.

Jack T. Taylor, assistant director of industrial development, St. Louis, transferred to the Gulf District, Houston, Tex.

MONON.—John B. Goodrich, secretary and treasurer, elected to the additional office of vice president-law.

NORTHERN PACIFIC.—D. H. King, superintendent, Idaho division, Spokane, transferred to the Tacoma division, Tacoma, Wash., to succeed **I. W. Brewer,** who retired Feb. 1 after nearly 48 years of service. Mr. King's successor is **G. W. Thompson,** Idaho division assistant superintendent, Spokane, who in turn is succeeded by **D. B. Lewis,** trainmaster, Pasco, Wash. **R. D. Schlappy,** also trainmaster, Pasco, assumed charge of the territory formerly assigned to Mr. Lewis, and **V. R. Scovill,** assistant district engineer, Seattle, named trainmaster to replace Mr. Schlappy.

ROCK ISLAND.—Has reorganized and expanded its mechanical department into two separate divisions—"planning and production" and "maintenance". Initially, headquarters will be in Chicago. As soon as new facilities are ready at Kansas City, headquarters will be transferred there. **H. J. Bowyer,** former superintendent, mechanical department, **Southern Pacific,** Houston, heads the mechanical department as chief mechanical officer. **J. R. Osman,** general superintendent of motive power, named manager of mechanical planning and production. **John W. Gann,** master mechanic, Missouri—Kansas division, appointed assistant chief mechanical officer—maintenance. **E. V. Duren,** district master car repairer, Southern Pacific, Houston, named general superintendent car department.

Other appointments in maintenance division: **C. T. Tyree,** superintendent car department; **A. S. Ellison,** assistant superintendent car department; **T. R. Smith,** supervisor locomotive maintenance; **L. F. LaRotonda,** air brake instructor and lubrication engineer; **A. J. Neubauer,** supervisor air conditioning; **O. W. Aten,** supervisor locomotive quality control; **A. C. Zagotta,** electrical engineer—maintenance.

Master mechanics named: **T. F. Kelly,** Illinois division, Silvis, Ill.; **E. F. Johnson,** Des Moines and Central divisions, Des Moines, Iowa; **J. T. Baier,** Missouri-Kansas division, Kansas City; **F. W. Stanton,** Southern division, El Reno, Okla.; **R. R. Rich,** Southern division, Little Rock, Ark.

Mechanical Planning and Production Division appointments: **R. F. Newton,** electrical engineer; **H. C. Christie,** mechanical engineer; **J. H. Whipple,** engineer mechanical methods; **R. B. Smith,** supervisor budgets and programs; **N. E. Brightwell,** chief chemist; and **C. H. Johnson,** chief draftsman.

UNION PACIFIC.—James G. Black, manager of properties, appointed general manager of properties, Omaha. **H. W. Haury,** assistant to general superintendent of transportation, Omaha, named assistant general superintendent transportation there. Mr. Haury's successor is **William R. Davis,** superintendent of transportation, Salt Lake City. **M. D. Sweet,** assistant superintendent of safety and courtesy, Oregon division, named assistant terminal superintendent, Omaha.

WESTERN PACIFIC.—Donald L. Loftus, director of market development, named assistant to president, San Francisco.

OBITUARY

Leroy C. Butcher, 56, assistant manager of production engineering—sides, **Youngstown Steel Door Co.,** died Feb. 15.

William T. McCauliff, 73, who retired in 1957 as general storekeeper, **New York Central,** died Feb. 24.

Fred G. Seig, 63, who retired in May 1963 as assistant to the vice president, **Association of American Railroads,** died last month on his farm in Allison, Iowa.

Robert Van Sant, 80, who retired in 1957 as director of public relations, **Baltimore & Ohio,** died Feb. 13 at his home in East Dennis, Mass.

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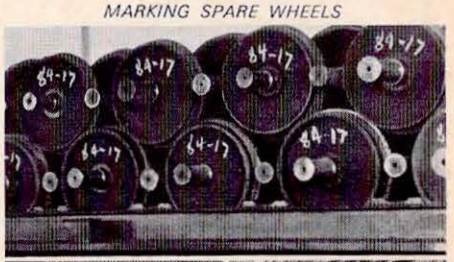

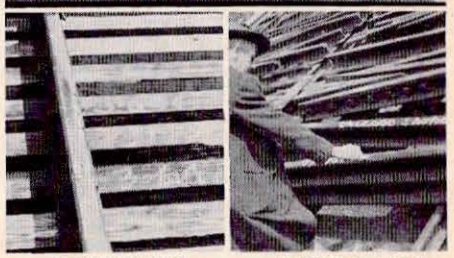

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STRUCTURAL DYNAMICS ENGINEER . . . This position requires an individual with a BS degree (MS preferred) in mechanical or aeronautical engineering with 3 to 5 years of experience in static, kinematic and dynamic analysis. Assignments will involve application of aircraft dynamic analysis techniques to rail transportation systems. Duties will include determination of optimum system geometry and spring constants, analysis of multi-degree-of-freedom systems for all significant response modes, with emphasis on isolation of critical modes. Work will also include acoustic and vibration analysis. Applicants must be able to synthesize as well as analyze all structural dynamics aspects of the project, and to correlate design and test through the use of classical analysis techniques.

SENIOR DESIGN ENGINEER . . . To qualify for this position the applicant must have a BS degree in mechanical or aeronautical engineering, plus a minimum of six years of related experience in aircraft airframe or railroad car design. Experience in railroad passenger car interior or railroad car truck design is desirable.

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American Brake Shoe

William E. Allen
Union Tank Car

Franklin George
GRS

Supply Trade

John S. Hutchins, president, **American Brake Shoe Co.** at Chicago, has been elected vice chairman. **William T. Kelly Jr.,** first vice president, Mahwah, N.J., has been elected president and chief operating officer.

William E. Allen, district sales manager, Southwest district office, Tank Car Division, **Union Tank Car Co.,** Houston, Tex., has been appointed to the newly created position of general sales manager of that division at Chicago, effective April 1.

Franklin George, manager, vehicle traffic control, **General Railway Signal Co.,** Rochester, N.Y., has been appointed director of transportation automation systems. He will be responsible for directing the application of GRS equipment to meet the requirements of railroad customers for automated information and management systems. Mr. George will also coordinate inter-departmental activities within the scope of such systems, reporting to the vice president—sales.

W. Perry Bollinger has been appointed manager of the new High Speed Ground Transportation Project of **Westinghouse Electric Corp.,** Pittsburgh, Pa. **John E. McNulty** has been appointed marketing manager. The new department will concentrate on determining the products and systems needed for high-speed inter-city transportation such as has been proposed for the Northeast Corridor.

Charles E. Hart has been appointed chief engineer, railway and pneumatic equipment, **New York Air Brake Co.,** Watertown, N.Y., succeeding the late **H. Norton Sudduth.**

Charles R. Vocke has been appointed rail products sales correspondent, Pittsburgh district, **L. B. Foster Co.** He was formerly a manufacturer's representative handling mechanical and electrical components.

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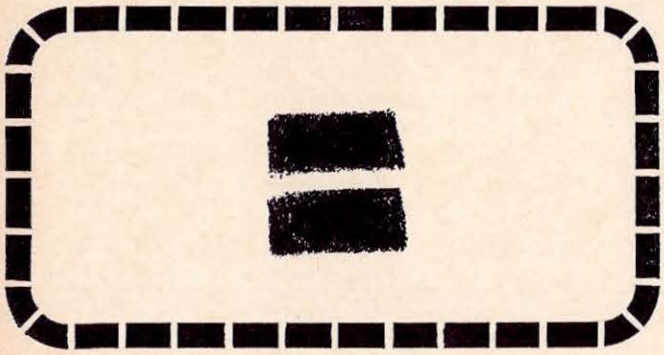

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THE ACTION PAGE

BART: Caution, yes; crisis, no

When the Bay Area Rapid Transit program came under fire from a San Francisco newspaper, BART found out who its friends were.

Mayor Shelley of San Francisco, and the Bay Area Council (composed of leading business, labor and civic personalities in the nine-county area) came to BART's defense. The city's other leading newspaper, The Examiner, is known to be preparing a long and detailed rebuttal of the charges. Governor Edmund G. Brown of California has never wavered in support of BART. As BART Chairman and President Adrien J. Falk put it: "Thinking people don't and won't pay any attention to [the attacks]."

After the wilder charges have been disposed of, however, one consideration remains. Inflation, could, indeed, affect the system's financial position; but should a public works project of this magnitude be called into question over a fact of economic life that confronts all planners, everywhere?

When the Interstate Highway Program was sold to the American people in 1956, it was understood that it would cost $26 billion. In the course of building the 41,000-mile road system, the figure rose to $33 billion, then $41 billion. Last year, the Commerce Department announced that the network would be completed in 1972 at a cost of $46.2 billion.

On a much smaller scale, the City of San Francisco is now considering proposals for two new express highways to be built at an estimated cost of $294 million. A senior engineer at Parsons-Brinckerhoff - Tudor - Bechtel (BART's engineering consultants) pointed out that the city's highway estimates take little or no account of inflationary factors PBTB is forced to count on in deciding how to spend BART's money. "If these factors are counted in," he said, "the real cost of the two new freeways is more on the order of $387 million."

In other words, a 35% increase in the highway project cost is a real possibility, if the roads get built—and they usually do.

In the field of public works, examples abound of big-scale projects taking years to complete—with costs going up all the while.

BART officials emphasize that they are not in a crisis over costs—but they have spotted a potential inflationary danger that bears close watching.

They do not regard themselves as being pushed into a corner. For example, recent wage settlements with the trade unions, although quite high, at any rate enable the management to chart some of its major costs over the next three years.

Nevertheless, the BART program is a massive undertaking, and the next three years are only one part of a much longer time-span. The initial mass transit feasibility studies date from 1953-55, and were made public in 1956. The California Legislature acted upon them in 1957 by creating a Bay Area Rapid Transit Commission. Between then and 1962, several Bay Area counties withdrew from the plan (there are signs of regret now) and studies had to be updated and modified before the project could be submitted to the voters.

All of this took time, and as the saying goes, time is money. No responsible person has charged the BART leadership with being frivolous in managing its assets. Whichever way the situation develops, San Franciscans are sure to acknowledge these facts, and will want further delays cut to a minimum.

Why not talk up for ourselves?

National Transportation Week (May 15-21) is just 10 weeks away. It is a good time to make plans to let the public know what a good job transportation has been doing and just how important railroads are to the scale, diversity and efficiency of the distribution system upon which U.S. society is thriving.

Public appreciation and understanding is important. It cannot be secured just by talking to ourselves. NTW is sponsored by the Associated Traffic Clubs and is backed by traffic and transportation organizations everywhere. Truck, barge, and airline people won't be shy about talking up their importance. It's an ideal time for us to talk up for railroads. NTW Chairman George H. Kronberg, vice president-sales and service, Milwaukee Road, says he has activity kits designed to help railroad officers form plans for NTW activity in company magazines, speeches, advertising and other programs. The railroads have been doing an outstanding job and have a real story to tell. National Transportation Week is a good time to tell it.

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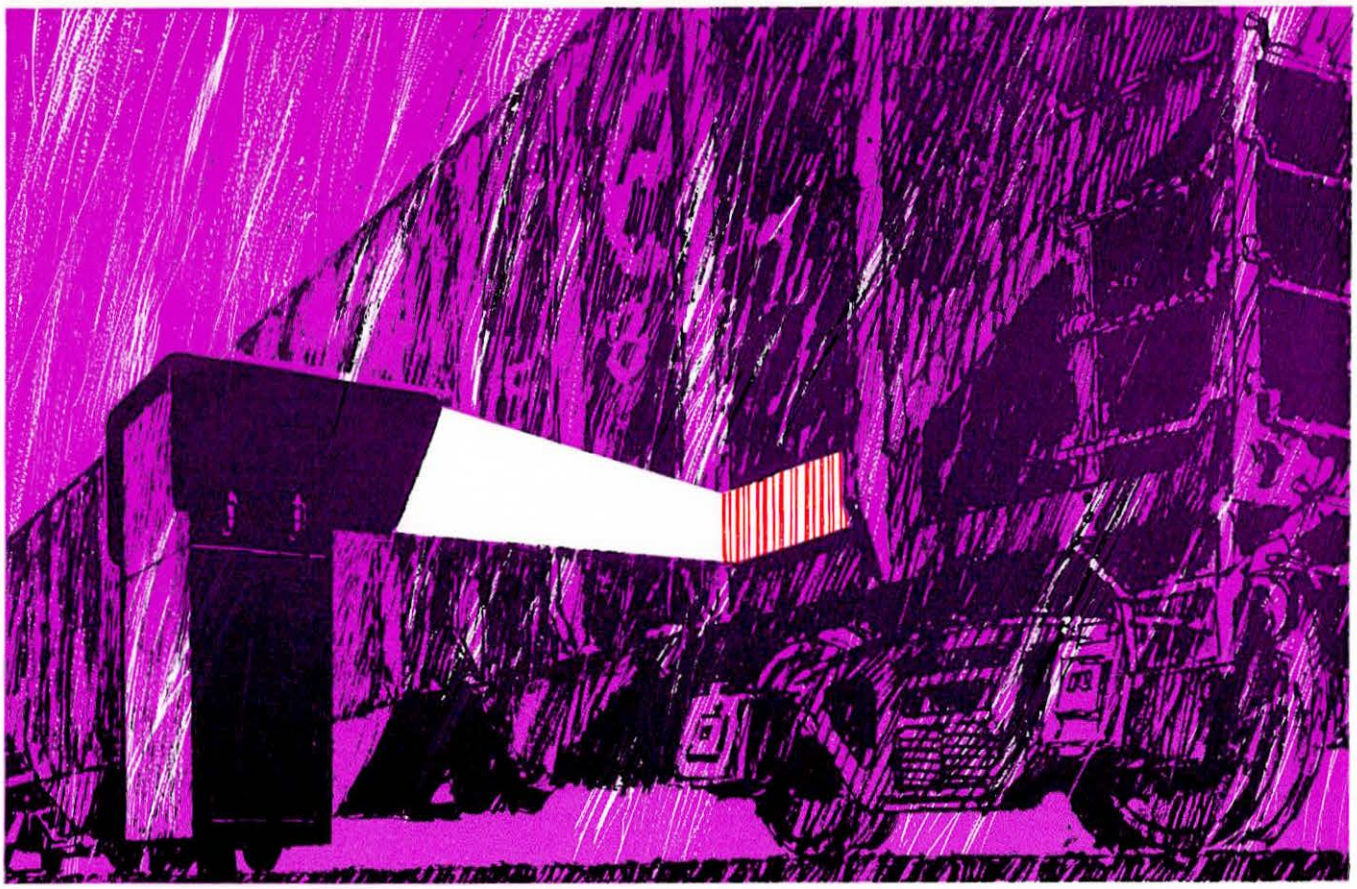

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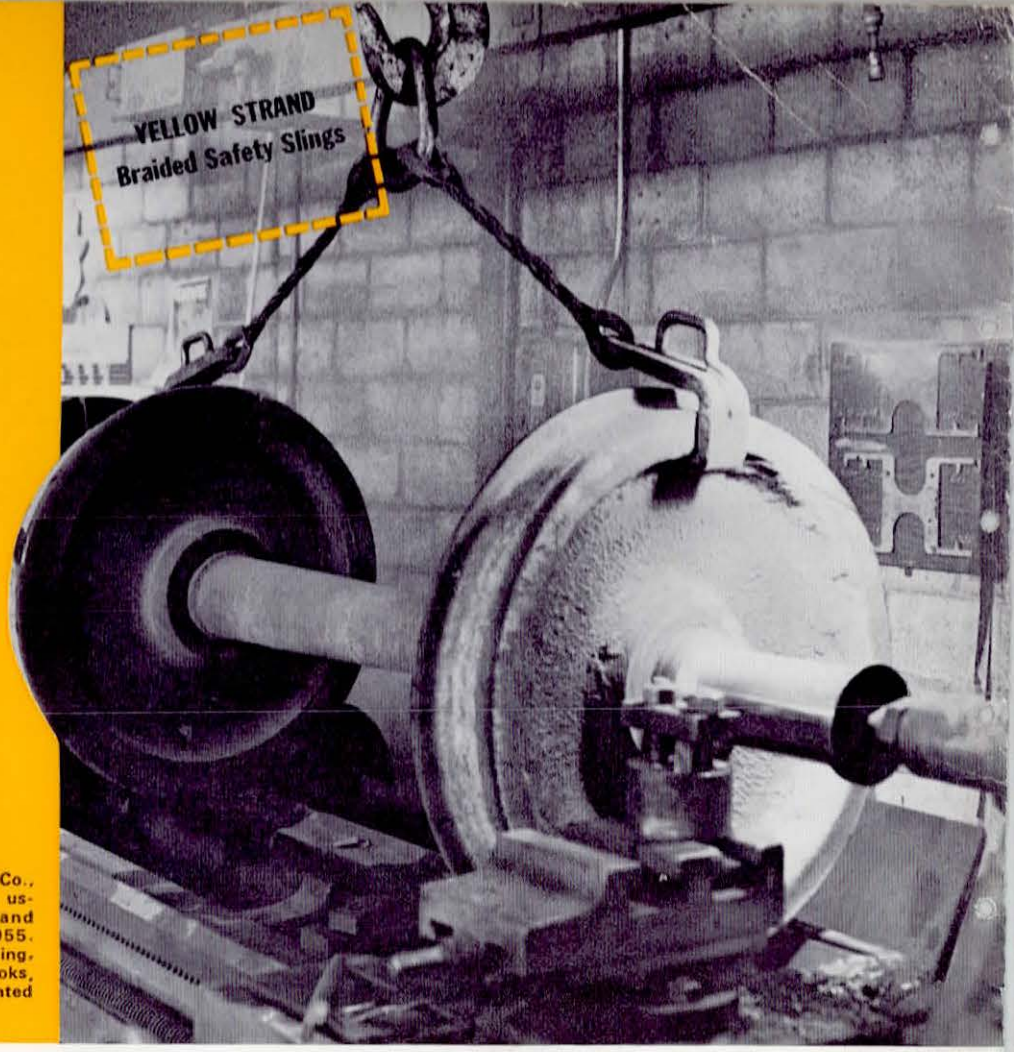

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